REPORT RESUMES

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STUDY TO DETERMINE THE FEASIBILITY OF A COORDINATED SYSTEM OF DISTRIBUTION FOR AUDIO TAPE MATERIALS. FINAL REPORT, SUMMARY OF FINAL REPORT.

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CHARACTERISTICS OF 350 EDUCATIONAL AUDIO TAPE LIBRARIES IN PUBLIC SCHOOLS, COLLEGES, EDUCATIONAL RADIO STATIONS, AND OTHER FACILITIES THROUGHOUT THE COUNTRY WERE COMPILED BY TWO QUESTIONNAIRES AND VISITS TO SELECTED LIBRARIES. PERCENTAGE DATA WAS GATHERED ON TAPE ACQUISITION AND EVALUATION, CATALOGING, FINANCING, EQUIPMENT AND ENVIRONMENT, AND ANTICIPATED FUTURE USE OF TAPES. MAJOR CONCLUSIONS WERE--THERE IS A NATIONWIDE NEED AND DESIRE TO ESTABLISH A COORDINATED TAPE ACQUISITION AND DISTRIBUTION SYSTEM, EXPANDED USE OF TAPES AT ALL EDUCATIONAL LEVELS IS ANTICIPATED DESPITE LACK OF PROGRAMS AND INFORMATION ABOUT THEM, AND THERE ARE AT LEAST 13 COLLEGE AUDIO TAPE LIBRARIES WILLING TO SERVE AS REGIONAL CENTERS FOR THE SYSTEM. (LH)

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Report on Study to Determine the Feasibility of a Coordinated System of Distribution for

AUDIO TAPES

by Louis H. Brown
PROJECT DIRECTOR

September 1967

A study conducted by the Bureau of Audiovisual Instruction of the University of Colorado under P.L. 81-152, Title III, P.L. 85-864 as amended, Title VII, from the U. S. Office of Education

FINAL REPORT

STUDY TO DETERMINE
the
FEASIBILITY OF A COORDINATED
SYSTEM OF DISTRIBUTION
for
AUDIO TAPE MATERIALS

Project No. 5-1157
Contract No. OEC4-6-051157-1635

by

Louis H. Brown
Project Director
University of Colorado Boulder, Colorado

September 1967

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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INTRODUCTION

For some time educators and persons interested in educational research have been, from all indications, concerned with innovation. Webster's definition for the term to innovate is, "to make changes; to introduce novelties." Certainly we are not literally attempting the latter per se!

Webster's definition of the word "innovation" is, "to make changes; also a change thus accomplished." If we accept this second emphasis on change accomplished, we have the basis for a concern about the status of the utilization of audio materials and specifically what is needed, if anything, to insure that the utilization can be "accomplished." If this is not our concern, then we must admit to an emphasis on "novelties" when we employ the term innovation.

There are several events occurring in education that have suggested a fresh look at the audio field. The lack of funds to attempt new and hopefully better techniques for instruction has been negated in a large part by provisions of such legislation as the National Defense Education Act and the Elementary Secondary Education Act. A re-emphasis on the individual nature of students is being generated. Technology has developed means to handle materials in a vast variety of formats. Thousands of educators have had the experiences of NDEA Institutes that have been designed to allow instructors to take advantage of the best that technology has to offer for their chosen field. Institutes designed specifically to train educators in the use of media, such as audio materials, have enrolled over three thousand specialists in the past two years.

This study reported herein was concerned with the broad task of defining the status of the audio tape field (other than commercial activities) and what that status implies. The specific objectives of the study were defined as follows:

A. To identify all of the tape libraries and repositories in the United States which are making audio tape recorded materials available to teachers in public and nonpublic schools.

B. To identify the basic problems encountered by these libraries and repositories in the acquisition, selection, evaluation, duplication, and distribution of audio tape recorded materials.

C. To prepare recommendations relative to the solution of these basic problems.

D. On the basis of objectives A, B, and C, to develop guidelines useful in the establishment of new tape libraries and repositories.

E. To determine the feasibility of developing a coordinated distribution system for audio recorded materials.

F. To make recommendations regarding a national plan for a more effective method of procuring, evaluating, duplicating, and distributing audio tape recorded materials, except those mentioned below.

This study included all types of audio recorded tape materials used in elementary and secondary schools, as well as those used for higher education and adult learning, except music and foreign language taped materials. Because of the highly specialized nature of these recordings and the current work being conducted in this latter area by Modern Language Association and the Center for Applied Linguistics, it is believed that area is being adequately covered. Similarily, those materials designed specifically for music education were not included.

PROCEDURES

A. Identification of audio tape libraries was requested of several different sources. Every state department of education was asked to list all known or suspected audio tape libraries within each of the fifty states. Several major audio tape suppliers and related equipment manufacturers were asked to identify audio tape libraries that they were aware of. The records of the National Tape Repository were made available for determining existing audio tape libraries. The National Educational Radio Association (NAEB) made known tape libraries as their records indicated and requested their membership to note additional collections.

The compilation of the names of audio tape libraries was further verified. With the cooperation and assistance of the Department of Audio Visual Instruction (NEA), a letter was sent to each of the indicated audio tape libraries that contained three questions; i.e., Do you have an audio tape library? How many programs are in your collection? To what subject areas do your programs pertain? The return of these responses was requested.

B. A rough questionnaire was developed by the project staff to determine relevant problem areas of concern such as location, selection, evaluation, duplication, and distribution of audio tape materials.

A conference of persons knowledgeable with various aspects of audio programs from colleges, state departments of education, school districts and manufacturers of audio tape materials, was convened. This advisory group reviewed the questionnaire and recommended the specific aspects to be added. This questionnaire was to be sent to audio tape libraries and urged that a second instrument be employed with a select group of public schools. The advisory group was convinced that all the audio tape libraries, regardless of size, should be asked to respond to the former instrument.

The revised instruments were developed, checked for tabulating capabilities and pre-tested with six audio tape libraries and appropriate public school districts. Minor changes were made, mostly in wording, as indicated by the pilot groups. A few additional changes were made as recommended by the advisory group. Both instruments were submitted to the U.S. Office of Education for approval before mailing.

C. Personal visitations were made to several pre-selected audio tape libraries for a firsthand evaluation of capabilities, interests, and systems of acquisition, selection, utilization, distribution, and storage techniques. Information secured served as a basis for the development of a brochure entitled "Guidelines for Audio Tape Libraries."

D. A conference of the advisory group was held in conjunction with the National DAVI Convention to review the questionnaire returns, the rough draft of the guidelines, and to make recommendations to be included in the final report.

E. A summary of the rough draft of the report was sent to all members of the advisory group for evaluation.

FINDINGS

A. Returns - Audio Tape Libraries:

The initial inquiry to those institutions identified by state education departments, audio tape materials suppliers and the records of the National Center for Audio Tapes (formerly National Tape Repository) indicated the following number of audio tape libraries with the indicated size of the collection for each.

Table I
Size of Audio Tape Libraries - Initial Inquiry

Over 1000 programs	72
Between 500 & 1000 programs	55
Between 200 & 500 programs	116
Less than 200 programs	468
	711

These libraries also noted what subject areas were included in their collections. Libraries of all size groups indicated a general spread of material for English, Social Studies, and Science. There were twenty-three collections noting an emphasis in the field of mathematics.

A questionnaire was designed for tape libraries and was sent to all of the libraries responding to our first inquiry shown in Table I. The number returned from the 711 questionnaires sent is given in Table II below:

Table II

Types of Institutions with Audio Tape Libraries

Types of Libraries	
Higher Education	146
Public Schools	126
Educational Radio Stations	24
State Departments of Education	3
Other (i.e., government agencies, individuals, special schools)	5
*Returned but unanswered	46
	350

* The specifics of the questionnaire were such that these groups did not feel that they qualified as an audio tape library.

Table II is probably a more realistic indication of the actual number of operating libraries than Table I. The size of the libraries of the responses represented by Table II is given as follows:

Table III

Size of Audio Tape Libraries for Questionnaire Respondents

Over 1000 programs	9
Between 500 & 1000 programs	14
Between 200 & 500 programs	43
Less than 200 programs	157
	223*

* The difference between the totals for Table II and Table III

represents those libraries that did not give the number of tapes in their collection.

It should be noted here that a check was made to determine whether or not there was a difference in the kinds of responses made by the large libraries versus the small libraries and, among the types of agencies supporting a library. There was not enough variance indicated on a percentage basis to justify a breakdown by such groupings.

All respondees were asked not to include in their figures, programs for foreign languages or music courses.

SOURCES OF PROGRAMS

The respondees indicated that, for most, at least 20% of their collection consisted of audio tapes produced by persons associated with instruction at their own institutions. The tabulations show that several libraries are receiving from 80% to 100% of their audio programs from on campus productions. It is also noted that thirty-one (31) libraries have collections with over 60% of the programs being designed locally for broadcasting.

Responses as to the percentage of other non-commercially produced programs indicates 20% or less of most collections are from off campus, commercial sources. Only thirteen (13) libraries noted that over 60% of their collections came from the commerical sources. The inference is that most audio tape programs of a non-commercial nature are being produced locally.

EVALUATION

There appears to be no type of form used for evaluation of audio tapes by two hundred fifty-one (251) of the libraries. Only thirty-six (36) libraries indicated that they used a prepared form, of which the project staff received four (4) samples.

The greatest number of libraries evaluated programs via individual teachers or supervisors and library staff. Since two hundred ninety (290) respondees were checked for one of the listed and only thirty-six (36) were employing formal forms, it is indicated that the evaluation tends to be of an informal nature.

The amount of use or number of requests made for a given tape program is shown to be the primary concern for the largest number of libraries.

Instructional value is given by the large majority, two hundred nineteen (219), of libraries as the criteria for inclusion of a tape in their library. This correlates well with the responses, one hundred eighty-six (186), noted for evaluation by teachers or supervisors. Technical quality was given as a criterion for inclusion of a program in the library in one hundred forty-six (146) cases and reliance on the source was given on one hundred nineteen (119) returns. The figures support the indication that formal evaluation is not done by most libraries.

CATALOGING

There are only three (3) libraries noting the cost of their catalog, thus we do not have a real idea of the cost factor. The libraries noting a charge for their catalog provided a mean charge of $ 1.80.

Distribution of catalogs is limited, as noted by the number of libraries who restrict distribution to their own institution, one hundred thirty-five (135), or within their state, sixteen (16). Only twenty (20) libraries, at most, indicated that they distribute catalogs outside their state, six (6), or nationwide, fourteen (14). These results tend to verify the concern of libraries and schools for locating audio tapes. They can be interpreted as pointing up the need for an organized distribution system.

The indexing for audio tapes is predominantly by title (141) and by subject area (107). The most preferences (49) recorded were for subject area indexing, followed in numbers by grade level (22), learning objectives (20), title (17), and producer (13).

Coding was written in as the "other" system of indexing for 71 respondents. The implication is that these libraries have set up their own numerical codes for presumably internal records.

This is substantiated by a relatively large number of libraries indicating an alpha number for coding.

In terms of preferences indicated for tape identification, most marked the Dewey Decimal System (22) or the Library of Congress system (16) as the preferred classification systems. Visitations to libraries for elaboration on this point indicated a preference for the Library of Congress system for customer use, and a number code of individual design for internal use.

For those checking the list of data processing techniques, most indicated they were using punched cards and this was the greatest preference for those checking the prefer column. Several responses indicated a data processing technique other than those listed on the questionnaire. Since descriptions were not given, it is assumed that data processing is not currently being used by these respondents. It is noteworthy that seven (7) checks were made to indicate that magnetic tape was used. Twelve (12) respondees listed this means as being preferable.

One hundred twenty-four (124) respondents indicated that they had a listing of programs. There are ninety-two (92) libraries that have a catalog. The largest preference was for a catalog, as opposed to a list. Fourteen (14) libraries, however, noted a preference for a list of tape programs.

Responses showed a heavy reliance on mimeographed or spirit duplication for printing "catalogs" followed by offset press. The preferences indicated an even division for the computer print-out and the offset press print.

Although no specific publication times were noted, most respondents indicated catalogs were printed at time intervals other than the one, two or three year intervals listed. It is thus assumed that the time between catalogs is longer than three years for most audio tape catalogs. Thirty-five respondents did indicate an annual catalog and twenty-eight noted a biennial catalog. The preferences were for either an annual or a biennial catalog.

Most supplements are noted to be printed annually, although thirty-eight responses were given for "others," which is assumed to indicate longer than a year's lapse between printings. Twenty-three responses showed a preference for a monthly supplement and twenty for a semi-annual supplement.

The responses to indexing are fairly evenly divided for alphabetical and subject indexing, with a slight edge noted in preferences for the subject classification.

FINANCING

One hundred sixty-five (165) respondees indicated that funds were provided to operate their libraries in part from their institutional budget. Of these, ninety-seven (97) designated that 100% of their funds were from General Funds. Twenty (20) noted that they were 100% self-supporting. Only six (6) stated that library collection was fully supported by federal fund sources listed, while a total of eighty-three (83) libraries indicated some federal support, fifty-seven (57) of which said that 20% or less of their income was from federal sources.

The budgets for the top ten libraries averaged $ 59,000.00 per year and for the top twenty the average budget was $ 35,000.00 per year.

Purchase of complete programs or at least payment for the cost of duplicating was given by three hundred eleven (311) respondents as the means of collecting new tape programs for their library. Of this number, one hundred fifty-five (155) secured over 60% of their collection by this means, compared to thirty-seven (37) who indicated acquisitions free of charge and only six (6) on an exchange basis.

Three libraries indicated that royalties were involved, but one institution noted royalities were paid for 400 out of the total 435 tapes on which royalties were paid.

Two hundred thirty-five (235) libraries stated that most of their distribution was within their state. Of this number, one hundred eighty-nine (189) libraries limited distribution to their own institution. Only twenty-eight (28) libraries said that they distributed duplicate tapes outside their state boundaries. Of the 189 libraries limited to distributing within an institution, one hundred fifty-nine (159) noted that there was no charge involved, while for those (60) distributing outside their home state, only seventeen (17) indicated that they did not charge for this service.

The source of tape used for duplicates was about equal between those where the user supplied the tape and those where the library supplied the tape.

The responses (46) as to the amount charged for duplicating indicates median charge of $ 1.00 for a fifteen minute program.

TECHNICAL

Environmental control: Over 75% of the respondees do not have humidity control. One hundred twenty-three (123) libraries noted they could control temperature while one hundred five (105) claimed they could not. Although wooden shelves are recommended, one hundred fifty-seven (157) libraries indicated the use of metal shelving, compared to one hundred four (104) that are using wood shelving.

The answers as to the speed of recording for master tapes showed one hundred two (102) libraries were equally split between 3-3/4 i.p.s. and 7-1/2 i.p.s. Twenty-one indicated higher speeds were used while thirteen (13) were using 1-7/8 i.p.s. recording speed for masters. Duplicate speeds noted are also about equal for recording speeds of 3-3/4 i.p.s. (135) and 7-1/2 i.p.s. (146). Twenty-nine (29) indicated that they had made duplicates at 1-7/8 i.p.s.

Most respondents marked full-track as the configuration for masters, while twenty-one (21) marked dual-track. The half-track or dual-track configuration is used for duplicates by thirty-five (35) libraries.

Very few libraries (13) noted the use of bulk tape while one hundred seventy-six (176) indicated they used new tape on reels. The use of used tape was indicated by seventy-four (74) libraries.

The make and model of recording and duplicating equipment was evaluated by the project staff for the sixteen (16) largest college libraries. The indications for maintenance procedures were scrutinized for these libraries as well. Twelve of these libraries indicate by their responses that they have equipment and maintenance procedures that would allow them to produce quality audio tape programs.

DIRECTIONS FOR FUTURE

Sixteen (16) libraries (none of the 16 large university libraries are included) said they duplicated cartridge tapes while two hundred thirty-three (233) responded negatively. No indications were given as to the kind of equipment employed by the libraries supplying cartridge tape duplication.

Replies to "the impact likely on the use of audio tapes by (1) individualization of instruction and/or (2) independent study and/or (3) random (dial) access systems and/or (4) computer assisted instruction for your area of service," were overwhelmingly positive statements of the expanded use of audio materials.

Academic areas that most respondees saw as increasing in use of audio tapes were at the elementary, secondary, and four-year college levels. The amount of increase was noted to be between 25% and 50% at every level.

The number of libraries experiencing at least a 25% increase for various grade levels is given in the following table:

Table IV

Number of Libraries Noting Increased Use by Grade Level

Pre-school	9
Elementary	80
Secondary	62
Two year college	17
Four year college	52
Graduate	15
Adult	13

The number of libraries that considered the following factors a medium or large detriment (as opposed to small or none) to the use of audio tapes for education are given in the table below:

Table V

Detriments to Use of Audio Tapes

	M-L	S-O
Lack of information about programs	182	48
Lack of appropriate programs	160	55
Lack of knowledge on how to use tapes	157	72

	M-L	S-O
Lack of program sources	131	83
Unwillingness of educators	130	96
Lack of equipment	70	144

The response to the question concerning the best role to be served by state education departments, regional universities, and a national distribution center, as determined by the number of responses of best or okay as opposed to poor or bad, in their role as (1) clearing house for information, (2) forwarding service for tapes, (3) duplicating service, (4) single subject center for tapes, or (5) an evaluation center, are listed below:

Table VI

Emphasis on Role of State Depts. of Educ., Univ., and National Audio Tape Centers

	State Education Department			University			National Center		
	Good	Poor	(Diff.)	Gd	Pr	(Df)	Gd	Pr	(Df)
(1) Clearing house	138 -	34 =	104	125 -	30 =	95	29 -	9 =	20
(2) Forwarding svc	76 -	67 =	9	107 -	45 =	62	129 -	26 =	103
(3) Duplicating svc	97 -	60 =	37	125 -	36 =	89	114 -	45 =	79
(4) Single subject center	47 -	99 =	(52)	78 -	69 =	9	53 -	76 =	(23)
(5) Evaluation center	124 -	39 =	85	115 -	28 =	87	128 -	30 =	98

The number of positive responses as to whether or not libraries would make duplicates available to a national distribution center was two hundred seven (207) positive and thirty-nine (39) negative. The preference for making duplicates available was noted to be on the basis of exchanging programs between libraries.

One hundred sixty-nine (169) were in favor of distributing a national catalog with their library identified on the cover, while sixty-two were opposed. One hundred eighty (180) said they would consider listing their tapes in a catalog distributed by a national center. Forty-six (46) libraries were opposed. The preference is for a catalog indexed by subject areas (107) or a catalog containing a combination of a subject area index and an alphabetical list (115).

RETURNS - PUBLIC SCHOOLS

A modification of the above questionnaire was designed for "progressive" or "light house" public schools. This instrument went through the same procedures as did the questionnaire referred to above.

The "light house" schools were selected from the lists published by "Project Discovery," by the Institute for Development of Educational Activities and those made known to the staff by various conference representatives. Of the eighty-four schools selected, thirty-one (31) returned the questionnaire.

UTILIZATION

The responses as to the number of tapes being used at given grade levels revealed the greatest use was at the elementary and the junior high levels. Recipients were also asked to indicate areas of criteria that were important for the utilization of audio programs and to note those that should, in their opinion, be included in a catalog description. The greatest number of responses showed that the grade level or subject was identified in actual practice for tape programs used in these schools. The largest number indicated a request that the designations in catalogs include achievement level that was appropriate for a given tape program, followed by I.Q. range and the enrichment value.

Thirteen (13) schools noted they used a system of evaluation for audio programs. Five of these schools indicate they have standing committees to evaluate tape programs and the others seem to rely on the reaction of teachers, and, in two instances, supervisors for comment.

When asked whether or not an increase in use of audio tape is foreseen, only one district replied in the negative. The areas of predicted increased use of at least 25% to over 100%, for over half of the respondents, were deemed to be for enrichment, for independent study, for individualized instruction, and for remedial programs. Fifteen (15) schools estimated an increase in use of over 25% for advanced programs and fourteen (14) saw a 25% increase for regular classroom instruction.

The grade levels checked for at least a 25% increased use of audio tapes, in order of the greatest number of responses, were in order of the greatest increase foreseen, junior high, senior high, intermediate, primary and adult programs. All of the respondents were from public schools and thus there was no indication for college levels included in these responses.

Over 80% of responses to the factors that would help facilitate the use of tapes were for a single catalog of audio tapes, for a clearing house (center) for distribution, for more tape recorders (playback equipment), and for a decrease in cost of duplicates.

The factors rated as being medium and large detriments to the use of tapes by over 80% of the respondees were lack of sources, lack of information about programs, lack of knowledge as to how to use tapes, and lack of playback equipment. The unwillingness of teachers was noted by half to be a medium or large factor, but noted by the other half of the respondents as being only a small factor.

SOURCES

The number of non-commercial catalogs on hand for three fourths of the schools, was usually one. Most of these catalogs consisted of less than one thousand titles. Just over half of the respondents indicated they had a National Tape Repository Catalog and of these, one fourth had not secured the last supplement. Half of the responding schools replied that they had their own catalog of tapes for distribution within their system.

EQUIPMENT AVAILABILITY

In most schools, the number of teachers for each tape recorder is six at the elementary level and six at the secondary level.

Although fifteen percent of the schools reported they now have a dial system, sixty-four percent indicated they expected to have such a system in five years. Well over three-fourths said they could duplicate tapes and all but three expected to expand their duplicating facilities.

INDICATIONS FOR FUTURE DIRECTIONS

The comments by individual schools regarding the impact on the increased use of audio tapes by individualization of instruction and/or independent study and/or dial access systems and/or CAI with only two or three exceptions were most emphatic that these factors would produce a high increase in the use of audio tapes, and a definite need for more audio programs exists and would continue to grow. To illustrate the typical reaction to this inquiry, the following is quoted from Lamphere Public Schools in Michigan.

> "The use of audio tapes has increased 300% in our district in the last three years as a direct result of both individualized instruction and independent study. The establishment of a reading department, with district consultants to work with teachers on reading programs K through 12, has had the greatest effect on the production and use of individualized instructional tapes at every level. An ungraded high school program has further emphasized the need for audio programs to meet the needs of students in the five phases of the program as well as those students pursuing an independent study program. The establishment of a central Instructional Materials Center for the production and distribution of audio tapes has increased utilization of these materials."

Of the recommendations as to the kinds of services that should be offered by state departments of education or universities, both institutions were rated as consistently high for serving as a clearing house for information, as a duplicating service, and evaluation centers. The idea of a national center as a clearing house of information and for evaluation was appealing to over half of the respondents.

Only one school noted that they would not make their tapes available to a national distribution center for audio tapes. Preference for means of making tapes available was slightly in favor of selling tapes, followed very closely by a one for one exchange of tapes.

VISITATIONS

Visitations were made to several libraries based on initial information that indicated these libraries were interested and capable of operating an audio tape distribution center of some magnitude. Informal sessions were also held with an evolving group known as the Association for Recorded Sound Collections.

These visitations showed that there are several institutions of higher learning that have both the interest and personnel to cooperate in a national distribution system for audio tape programs.

The technical equipment required to operate a regional center for a national distribution system was in actual operation at most of these centers. Several university tape centers are contemplating expanding their facilities.

Procedures for duplicating and storing tapes varied from one center to the next. The general kinds of agreements reached during the visitations for minimum standards, procedures and statistics are reflected in the "Guidelines for Audio Tape Libraries," included in this report.

A few of the institutions that initially were thought to have an audio tape duplicating capability, did not in reality. Their hope was commendable and with the advent of a national system of distribution, they may well have the justification they need to acquire better duplicating facilities.

The need and desire for establishing a nationwide distribution system was expressed with enthusiasm at every operating library visited. This need was justified by the demand these libraries are encountering for varied programs of good quality and appropriate for use in educational settings. The specific type of programs desired varied widely and was dependent on the particular situations.

CONCLUSIONS

In 1962, the University of Colorado conducted a survey to identify the existence of audio tape libraries in educational institutions and agencies in the United States. This survey indicated that there were only forty-two (42) educational tape libraries in the fifty states. The initial phase of this study for a coordinated system of distribution identified seventy-one (71) educational tape libraries and, via the questionnaire, approximately three hundred (300) libraries have been verified. Even with a reasonable allowance for error in the 1962 survey of this study, the rate of growth is phenomenal. These three hundred (300) libraries are noted to be attempting to expand their services due to demands placed upon them. In addition, the consistent reply to our inquiries as to the greatest need of these libraries has been for more and varied sources of good audio tape programs.

The open end question as to the future use of audio tapes was answered in a positive manner in nearly every case verifying the expanding use of audio tapes. The responses by institutions already engaged in distributing audio programs, indicates the expected amount of increase (predominately 25% to 50% increase at the elementary and secondary level and the same for our 4 year colleges) in the use of audio tape. The results of the instrument sent to "light house" public schools, which may or may not have been using audio tapes, show that 9 out of 10 schools foresee an increase in use of audio tapes. These schools also reflect a need for a wide range of programs to meet the demands of a variety of types of presentations at all grade levels.

The prime problem is that of acquiring new audio materials. Sources must be identified and the paths of exchange developed and maintained. Once the materials have been located, selection becomes a concern of every library. The variations in programs and the school population served will be reflected by the kinds of selections to be made.

Distribution of materials involves the matter of having information in a very useable format available to enable instructors and instructional planners, so they can readily locate desired programs. Thus there is a need for cataloging with adequate descriptions and for such a catalog to be widely distributed. Distribution ties in very closely with acquisition, since the means of distribution, say through regional centers, can become the channels for acquisition of new programs.

Where established tape libraries have not organized to update their holdings, the demand for tapes has consistently reached a a peak and then fallen off to a very low level. This is unfortunately the usual pattern. Directors of libraries in this category have admitted that there is a demand for audio tape programs, but they have not as yet found a way to develop a system for updating their collection. With only one or two exceptions, the university tape libraries throughout the country are interested in developing a method of securing and exchanging audio tape programs. This fact is attested to by the interest in exchanging tape programs as shown by the fact that 85% of the tape library respondents are anxious to secure new tape programs.

Although many educational tapes have been produced and will continue to be produced in a wide variety of formats, such tapes will be utilized only if their quality is maintained and their curricular application and availability are made known. There is a minimum of exchange of information regarding the availability of tape recorded programs between tape libraries and instructors. This study has shown that over 80% of the tape libraries do not make catalogs available outside their institution, and only fourteen (14) libraries make their program available across the country. As the amount of material produced on audio tape is increased, the need for an organized system for making them available is increased.

The study has provided the staff with many occasions to discuss a distribution system for audio tapes with educators across the country. At almost every encounter, the response has been that an organization for the exchange of both information and material is badly needed. The idea has been expressed time after time that if a system can be developed for distribution of audio tapes, then such a system can be expanded and/or modified to meet the increasing demands for exchange of other kinds of instructional materials.

The demand for audio tape programs stems from several factors. The Elementary and Secondary Act of 1965 under Title I has made possible the acquisition of recorded materials; Title III authorizes the development of tape recording facilities and magnetic tape libraries. The National Defense Education Act and the Higher Education Act both provide for the purchase of equipment including tape recorders, playback equipment, and distribution systems. It is obvious that the recording and duplicating equipment (hardware) will not serve a useful function without adequate programs (software). The "light house" schools indicate a predominate concern for sources of audio programs and that it is not an unwillingness on the part of teachers that restrict the use of audio programs.

The awareness on the part of educators to the necessity of providing instructional materials on an individual basis is and will increasingly place a heavy demand for audio tape programs. Direct application of tapes for instructional use is wide-spread in school systems of all sizes. This use is typified by the following quote from the Tape Teaching Project Report issued by the Norwalk, Connecticut School System sponsored by the Ford Foundation: "Taped lessons offer many advantages to the teacher. They serve to make more economical use of teacher time and provide instructional materials which can be developed for varying levels of pupil's achievement. Tapes yield a flexibility in grouping and subject matter which fosters individualized instruction." The value of using recorded lessons for the improvement of instruction seems limitless. Experienced teachers recognize that tape teaching can be a valuable teaching aid and _they are using it more and more each year_.

The Norwalk Curriculum Materials Center duplicates and sends out to teachers from _60 to 100 taped lessons each week_.

The Center for Research in Educational Media Design findings supports the advantages of using audio tape in reports in such studies as: the three year study at Westside Junior High School in Omaha, Nebraska for teaching spelling by tapes, and the _Effectiveness of Instructional Tapes for Changing Regional Speech Patterns_, Michigan, 1962.

The application of audio tape programs could be elaborated on at length in conjunction with the rapid expansion of remote dial select systems that are spreading across the country. It is obvious that such systems provide a high degree of flexibility that must utilize a wide array of audio materials.

There are three primary areas of consideration for a tape distribution system: (1) cataloging and dissemination of descriptive information; (2) a common coding and indexing system to utilize computer capabilities; and (3) a system of organization (model) to distribute audio tape programs and to retrieve (feedback), through the system, the new audio tape programs being developed, so they can be redistributed wherever the need for them exists. There are many factors affecting these three areas that will have to be worked out such as copyright release techniques, evaluation formats, publication of programs of instruction using audio tapes, standards of recording, etc.

The study has identified a nucleus of existing libraries that are experienced and anxious to develop a coordinated system of distribution. Studies such as the Oregon State System of Higher Education Project of exchanging information among institutions of higher education and the study at Syracuse for a film distribution system for the State of New York have been examined regarding their implications for a national distribution system for audio tapes. The evolving system of audio tape distribution by the Texas State Education Department has also been investigated. Consideration has been given to commercial organizations for distribution, as well.

On-the-spot visitations to several libraries of tape collections involved discussions as to how such a system might be organized. The director of this study has been convinced that the necessary equipment and enthusiasm is present at San Francisco State College, the University of Colorado, the University of Iowa, State University of New York at Buffalo, and Syracuse University, to name a few libraries that would, and could, provide the core of libraries needed for a distribution system. Preference is for a national center organized around regional university centers. Over 84% of the respondents indicate that they would make duplicates of their tape collection available to such a national distribution system.

In capsule, this study has vividly shown that:

(1) The use of audio tapes is expanding rapidly at all levels of education.

(2) There is currently a limited number of tape titles available at any given institution.

(3) There is no individual tape library in the nation capable of meeting the increased demand for audio taped materials.

(4) There is no systematic exchange of tapes.

(5) There is no systematic method of securing new programs.

(6) THERE IS A NATIONWIDE NEED TO ESTABLISH A COORDINATED DISTRIBUTION SYSTEM INCLUDING ACQUISTION OF NEW PROGRAMS.

RECOMMENDATIONS

Based on the conclusions derived from the data and information provided by this study, the following recommendations are urged. It is suggested that the reader refer again to the definition of "innovation" given in the introduction.

1.A. Funding should be provided to pursue and affect a regional distribution system for the procurement and distribution of audio tape materials. Since such a system would benefit educational institutions of all levels and in every section of the country, this project is a justifiable endeavor for the U.S. Office of Education. A proposed model for such a system has been submitted to the U.S. Office of Education as Phase II of this study.

1.B. Geographic regions should be identified with a tape duplicating center housed in a University or State Department of Education Library and be identical with other centers regarding procedures; selecting, recording, evaluating, and duplicating audio tape materials. In cooperation with other regional centers, each center would maintain:

(a) Standards for recording and duplicating audio programs and for coding and indexing descriptions of audio programs.

(b) Listings for inclusion in a single national audio tape catalog and provisions for distribution within the region served.

(c) An organized system for securing new audio tape programs from educational institutions and agencies within their region for distribution to other regional centers.

2. This recommended distribution system would work very closely with such groups as the National Association of Educational Broadcasters, the National Education Association and the Association for Recorded Sound Collectors.

3. The recommended distribution system would not distribute commercially available materials and would not seek to distribute foreign language or music programs.

4. Professional groups at all levels of education should be encouraged to identify the types of specific audio tape materials that would have the greatest value for instruction. Such groups

should be encouraged to send their evaluations of audio programs to their source of the programs and, in essence, become an integral part of the system.

APPENDIX D -- ERIC REPORT RESUME

Department of Health, Education, and Welfare
Office of Education

ERIC REPORT RESUME

OE 6000 (Rev. 9-66)

Eric Accession Number

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TITLE:

STUDY TO DETERMINE THE FEASIBILITY OF A COORDINATED SYSTEM OF DISTRIBUTION FOR AUDIO TAPE MATERIALS

Personal Author (s):

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Institution Source:

UNIVERSITY OF COLORADO, BUREAU OF AUDIOVISUAL INSTRUCTION, BOULDER, COLORADO 80302

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Final Report: 43 pages Summary: 11 pages Appendix:

Retrieval Terms:

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Abstract:

This study has shown that there is a definite need for an organized system of distribution for audio tape materials. The use of audio tape programs is rapidly expanding at all levels of education and is expected to continue at a rapid pace with the renewed emphasis on the individual nature of instruction and the incorporation of technological advances into programmed sequences of instruction.

Educational audio tape libraries are increasing in number in response to the accelerated use of audio tapes for learning. There is a lack of uniformity among libraries as to techniques of collecting, processing, maintenance of records, duplication standards that is detrimental to the ready acquisition and use of audio materials for instruction. There is a crying need for organization and for the administration of the availability of audio tape programs in a format that can be used to select materials on the basis of instructional needs.

The study has produced a brochure entitled, "Guidelines for Audio Tape Libraries," which outlines some minimum standards for equipment, maintenance, record keeping, and includes a bibliography of examples of how audio tape is being utilized in instructional programs. This publication also included a list of the larger educational audio tape libraries and a bibliography of technical references for audio reproducation.

There exists a nucleus of adequately equipped and interested audio tape library duplication centers that could be organized as regional centers with a national center as the hub, to provide the procurement, selection, standards and means of distribution of audio tape materials. Positive action, including financing is needed to achieve such an organization that could well be the basis for instructional materials, other than just audio tapes.

APPENDIX A

nea *department of audiovisual instruction*

1201 SIXTEENTH STREET, N.W. • WASHINGTON, D. C. 20036.

OCTOBER 13, 1966

THE UNIVERSITY OF COLORADO IS ENGAGED IN A FEASIBILITY STUDY TO DETERMINE THE POSSIBILITIES OF A NATION-WIDE DISTRIBUTION SYSTEM FOR AUDIO TAPES. THEY HAVE ASKED DAVI TO HELP IDENTIFY THE NAMES AND LOCATIONS OF AUDIO TAPE COLLECTIONS. WITH THE ADVENT OF DIAL ACCESS SYSTEMS, CORRELATION OF TEXTBOOKS AND AUDIO TAPES, AND THE INCREASING USE OF AUDIO TAPES FOR INDEPENDENT STUDY AND ADULT PROGRAMS, IT HAS BECOME MORE AND MORE NECESSARY THAT EACH OF US BE ABLE TO LOCATE AUDIO TAPE PROGRAMS. WE URGE EACH OF YOU TO ANSWER THE QUESTIONS BELOW AND PROMPTLY RETURN THIS LETTER WITH YOUR CORRECTED NAME AND ADDRESS TO:

AUDIO TAPE DISTRIBUTION PROJECT, STADIUM BUILDING
ROOM 313, UNIVERSITY OF COLORADO, BOULDER, COLORADO 80302

1. Do you maintain a collection of audio tapes other than foreign language tapes? ____YES ____NO

2. For other than foreign language tapes, please indicate the approximate number of audio tape titles in your collection.

___0-50, ___51-100, ___101-200, ___201-500, ___501-1000, ___Over 1000

3. Will you please indicate the approximate percentage of your audio tapes that are related to subject areas and circle the appropriate grade level(s) covered by the subject area tapes?

____% English (El:Sec:Col:Adult)
____% Music (El:Sec:Col:Adult)
____% Sciences (El:Sec:Col:Adult)
____% Social Studies (El:Sec:Col:Adult)
____% Mathematics (El:Sec:Col:Adult)
____% ______________ (El:Sec:Col:Adult)

YOUR COOPERATION IS NEEDED AND WILL BE APPRECIATED. ANY INSIGHTS OR DIRECTIONS YOU MIGHT HAVE FOR THIS STUDY WILL BE WELCOME.

CORDIALLY,

Louis H Brown

LOUIS H. BROWN
NATIONAL TAPE REPOSITORY

DAVI CONVENTION
ATLANTIC CITY APRIL 2-6 1967

APPENDIX B

Directory of Known University Audio Tape Libraries

The directory listed below contains location of some University tape duplication centers around the country. Detailed information regarding these centers may be obtained by writing directly to these centers or to the National Center for Audio Tapes, Stadium Bldg. - Room 320, University of Colorado, Boulder, Colorado 80302.

California

Audiovisual Dept.
University of California
Berkeley, California 94720

Audiovisual Services
Grossmont College
8800 Grossmont College Drive
El Cajon, California 92020

Audiovisual Dept.
Foothill College
12345 El Monte Avenue
Los Altos Hills, California 94020

Instructional Materials Center
Monterey Peninsula College
980 Fremont Avenue
Monterey, California 93940

Audiovisual Dept.
Sacramento State College
6000 Jay Street
Sacramento, California 95819

Audiovisual Dept.
San Diego State College
5402 College Avenue
San Diego, California 92115

Colorado

Audiovisual Services
Colorado State University
Fort Collins, Colorado 80521

Connecticut

Director, TV & Multi-Media Dept.
S. Connecticut State College
501 Cresent Street
New Haven, Connecticut 06515

District of Columbia

Audiovisual Director
Georgetown University
Washington, D.C. 20007

Florida

Radio Station WUSF
University of S. Florida
4202 Fowler Avenue
Tampa, Florida 33620

Illinois

Audiovisual Director
Southern Illinois University
Carbondale, Illinois 62901

Tapes for Teaching
Audio Aids Service
University of Illinois
704 S. 6th Street
Champaign, Illinois 61820

Indiana

Radio Station WFIU
Radio-Television Bldg.
Indiana University
Bloomington, Indiana
47405

Audiovisual Dept.
Purdue University
Lafayette, Indiana 47909

Teaching Materials Services
Ball State University
Muncie, Indiana 47306

Iowa

Iowa Tapes for Teaching
Audiovisual Center
University of Iowa
Iowa City, Iowa 52240

Michigan

Tape Duplication Service
Audiovisual Education
Center
University of Michigan
720 E. Huron Street
Ann Arbor, Michigan 48104

Broadcasting Dept.
Western Michigan University
Kalamazoo, Michigan 49001

Minnesota

Audiovisual Dept.
College of St. Thomas
St. Paul, Minnesota 55101

Audiovisual Director
Mac Alester College
1600 Grand Avenue
St. Paul, Minnesota 55101

Nebraska

Tapes for Teaching
Bureau of Audiovisual
Instruction
University of Nebraska
Lincoln, Nebraska 68508

New York

Audiovisual Director
Queens College - City University of New York
65-30 Kissena Blvd.
Flushing, New York 11367

Audiovisual Director
State University of New York
New Paltz, New York 12561

Audiovisual Director
State University of New York
Stony Brook, New York 11790

Audiovisual Dept.
Syracuse University
240 H. B. Crouse Hall
Syracuse, New York 13210

Ohio

Radio Station WGUC
Health Service Bldg. Room 117
University of Cincinnati
Cincinnati, Ohio 45221

Teaching Aids Laboratory
124 West 17th Avenue
Columbus, Ohio 43210

Radio Station WOSU
Telecommunications Center
Ohio State University
2470 N. Star Road
Columbus, Ohio 43221

Audiovisual Director
Ohio Wesleyan University
Delaware, Ohio 43015

Tape Duplication Service
Kent State University
Kent, Ohio 44240

Oklahoma

Audiovisual Dept.
Oklahoma Christian College
Eastern & Memorial Road
Oklahoma City, Oklahoma
73111

Director Learning Resources
Oral Roberts University
777 South Lewis
Tulsa, Oklahoma 74114

Rhode Island

Audiovisual Director
University of Rhode Island
Kingston, Rhode Island
02881

Texas

Radio Station KUT-FM
The University of Texas
Box 7158 - Univ. Station
Austin, Texas 78712

Audiovisual Director
East Texas State College
Commerce, Texas 75428

Fondren Library
Rice University
6100 Main Street
Houston, Texas 77001

Utah

Tape Library
Bureau of Audiovisual
Instruction
Brigham Young University
Provo, Utah 84601

Vermont

Radio Station WRUV
Pomeroy Hall
University of Vermont
Burlington, Vermont 05401

Virginia

Reigner Recording Library
Union Theological Seminary
Richmond, Virginia 23227

Washington

Radio Station KWSC
Arts Hall - Room 110
Washington State University
Pullman, Washington 99163

Audiovisual Dept.
University of Washington
Seattle, Washington 98105

AUDIO TAPE DISTRIBUTION PROJECT QUESTIONNAIRE

NAME OF RESPONDENT ____________ TITLE ____________

SCHOOL DISTRICT ____________ STREET ADDRESS ____________

CITY ____________ STATE ____________ ZIP CODE ____________

---------- IN ANSWERING THIS QUESTIONNAIRE DO NOT INCLUDE FOREIGN LANGUAGE OR MUSIC RECORDINGS ----------

I. A. Check the estimated number of different audio tape programs you are now using in your district each school year at the following levels:

		Number of recorded programs						
		(1) None	(2) 1-20	(3) 21-50	(4) 51-100	(5) 101-200	(6) 201-500	(7) Over 500
1.	Pre-school	8	3	2	1	2	0	0
2.	Grades 1, 2, and 3 (Primary)	4	5	4	0	2	2	1
3.	Grades 4, 5, and 6 (Intermediate)	1	7	4	1	2	2	1
4.	Grades 7, 8, and 9 (Junior High)	1	6	5	4	4	1	0
5.	Grades 10, 11, and 12 (Senior High)	4	5	1	1	1	0	0
6.	Adult programs	4	0	1	1	0	0	1
7.	Other	18	24	0	1	0	0	0

B. In column (1) check those areas you have identified for audio tapes used in your district and in column (2) check those areas that you feel should be included in a catalogue description.

		Utilization (1)	Catalogue (2)
1.	Stated learning objectives	2	4
2.	A reading level	2	2
3.	An I. Q. level	1	7
4.	An achievement level	3	14
5.	A subject area or grade level	5	5
6.	Enrichment value	4	8
7.	Other	2	3

C. Do you employ a system of evaluating audio programs? (1)Yes ☐ 13 (2)No ☐ 15

D. If yes, describe system briefly. ____________

____

____

II. A. Check the estimated number of non-commercial audio tape catalogues you have that list approximately the following number of titles.

		Number of catalogues on hand									
		(1) 1	(2) 2	(3) 3	(4) 4	(5) 5	(6) 10	(7) 15	(8) 20	(9) 25	(10) Over 25
1.	From 50 to 500 titles	6	5	2	0	2	1	0	0	0	
2.	From 500 to 1,000 titles	4	3	0	0	0	0	0	0	0	
3.	From 1,000 to 5,000 titles	2	2	1	1	0	1	1	0	0	
4.	Over 5,000 titles	0	0	0	0	0	0	0	0	0	

B. Do you have the 1962-63 National Tape Repository Catalogue? (1)Yes ☐ 16 (2)No ☐ 15

C. Do you have the Supplement I to the National Tape Catalogue? (1)Yes ☐ 11 (2)No ☐ 19

1.	Stated learning objectives	2	9
2.	A reading level	2	2
3.	An I. Q. level	1	7
4.	An achievement level	3	14
5.	A subject area or grade level	5	3
6.	Enrichment value	4	8
7.	Other	2	3

C. Do you employ a system of evaluating audio programs? (1)Yes 13 (2)No 15

D. If yes, describe system briefly. ______________________________

II. A. Check the estimated number of non-commercial audio tape catalogues you have that list approximately the following number of titles.

		Number of catalogues on hand									
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		1	2	3	4	5	10	15	20	25	Over 25
1.	From 50 to 500 titles	6	5	2	0	2	1	0	0	0	☒
2.	From 500 to 1,000 titles	4	3	0	0	0	0	0	0	0	☒
3.	From 1,000 to 5,000 titles	2	2	1	1	0	1	1	0	0	☒
4.	Over 5,000 titles	0	0	0	0	0	0	0	0	0	☒

B. Do you have the 1962-63 National Tape Repository Catalogue? (1)Yes 16 (2)No 15

C. Do you have the Supplement I to the National Tape Catalogue? (1)Yes 11 (2)No 19

D. Do you have a catalogue of tape programs available in your district? (1)Yes 17 (2)No 13

III. A. Do you foresee an increase in the use of audio tapes in your district? (1)Yes 30 (2)No 1

B. If yes, check the box that best indicates your estimate as to the amount of increase in your schools in the next 3 to 5 years for the following factors:

		Percentage increase							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		0%	5%	10%	25%	50%	75%	100%	Over 100%
1.	As part of regular classroom instruction	0	5	5	4	3	2	1	4
2.	For enrichment of supplement	0	0	4	11	5	0	2	3
3.	Independent study	0	1	0	5	6	3	4	8
4.	Individualized instruction	0	1	2	3	7	2	5	6
5.	Computer assisted instruction	6	2	3	0	2	0	1	2
6.	Dial (random) access systems	8	0	1	1	1	0	3	3
7.	Remedial programs	0	1	7	7	1	0	3	6
8.	Advanced programs	0	1	4	7	0	3	1	4
9.	Other	2	0	1	1	0	0	1	2
10.	Pre-school	3	2	0	1	3	0	1	2
11.	Grades 1, 2, and 3 (Primary)	1	1	2	2	2	3	3	2
12.	Grades 4, 5, and 6 (Intermediate)	1	0	3	3	3	3	2	2
13.	Grades 7, 8, and 9 (Junior High)	1	0	1	6	4	3	1	4
14.	Grades 10, 11, and 12 (Senior High)	1	1	0	4	6	1	2	5
15.	Adult programs	2	2	2	0	2	1	3	2
16.	Other	3	1	0	0	0	0	1	1

III. C. Check each of the following factors as to their importance in facilitating an increase in the use of audio tapes for education.

		Effect on increasing use			
		(1)	(2)	(3)	(4)
		None	Small	Medium	Large
1.	A single catalogue to include all available tapes	1	4	6	26
2.	A clearing house for the distribution of audio tapes	0	0	13	18
3.	More playback equipment in classrooms	0	2	13	14
4.	Decrease in cost of tape duplicates	0	6	16	9
5.	Other	0	1	0	5

D. Check the following factors as to their importance of being detrimental to the use of audio tapes for educational purposes.

		Degree of detriment			
		(1)	(2)	(3)	(4)
		None	Small	Medium	Large
1.	Lack of program sources	0	1	15	13
2.	Lack of information about programs	0	1	12	18
3.	Lack of appropriate programs	0	1	11	19
4.	Lack of knowledge as to the effective use of audio tapes	0	6	8	17
5.	Unwillingness of educators to employ audio tape	0	14	8	7
6.	Lack of playback equipment available for use	0	4	14	13
7.	Other	0	1	0	2

IV. A. Check the approximate ratio of the number of tape recorders (R) to the number of teachers (T) in your district.

		(1)	(2)	(3)	(4)	(5)	(6)
							Note
		1R/1T	1R/3T	1R/5T	1R/10T	1R/25T	Other
1.	At Elementary level	1	6	3	6	2	1
2.	At Secondary level	0	5	7	10	2	2

B. Check the appropriate box for the following questions for your district.

			(1)		(2)
1.	Do you have a dial (random) access system in your district?	Yes	5	No	26
2.	Do you expect to have or expand your system within the next 5 years?	Yes	20	No	7
3.	Do you have study carrels in your schools?	Yes	28	No	3
4.	Do you expect to have or expand the carrels within the next 5 years?	Yes	27	No	3
5.	Do you have facilities and equipment for duplicating audio tapes?	Yes	27	No	4
6.	Do you expect to obtain or expand duplicating facilities within 5 years?	Yes	24	No	5

C. Briefly stated, what impact on the use of audio tapes do you see as the result of (1) individualization of instruction and/or (2) independent study and/or (3) dial (random) access systems and/or (4) computer assisted instruction for your area of service? Please use examples when appropriate and attach additional pages if you like.

____

____

____

D. Check the appropriate column according to your preference for a possible audio tape distribution system. Read ALL possibilities before checking.

			(1)	(2)	(3)	(4)
			Best	OK	Poor	Bad
1.	Have your State Department of Education act as:					
	(a)	Clearing house for information	8	17	0	0
	(b)	Forwarding service for tapes	5	9	4	4
	(c)	Duplicating service for programs	6	12	2	2
	(d)	Single subject library with other states for other subjects	2	7	7	7
	(e)	Evaluation and recommendation center	3	14	3	3
	(f)	Other	1	0	0	0

2.	At Secondary level	0	5	7	10	2	2

B. Check the appropriate box for the following questions for your district.

			(1)		(2)
1.	Do you have a dial (random) access system in your district?	Yes	5	No	26
2.	Do you expect to have or expand your system within the next 5 years?	Yes	20	No	7
3.	Do you have study carrels in your schools?	Yes	28	No	3
4.	Do you expect to have or expand the carrels within the next 5 years?	Yes	27	No	3
5.	Do you have facilities and equipment for duplicating audio tapes?	Yes	27	No	4
6.	Do you expect to obtain or expand duplicating facilities within 5 years?	Yes	24	No	5

C. Briefly stated, what impact on the use of audio tapes do you see as the result of (1) individualization of instruction and/or (2) independent study and/or (3) dial (random) access systems and/or (4) computer assisted instruction for your area of service? Please use examples when appropriate and attach additional pages if you like.

D. Check the appropriate column according to your preference for a possible audio tape distribution system. Read ALL possibilities before checking.

		(1) Best	(2) OK	(3) Poor	(4) Bad
1.	Have your State Department of Education act as:				
(a)	Clearing house for information	8	17	0	0
(b)	Forwarding service for tapes	5	9	4	4
(c)	Duplicating service for programs	6	12	2	2
(d)	Single subject library with other states for other subjects	2	7	7	7
(e)	Evaluation and recommendation center	3	14	3	3
(f)	Other	1	0	0	0
2.	Have a University in your region act as:				
(a)	Clearing house for information	5	14	2	4
(b)	Forwarding service for tapes	12	9	0	4
(c)	Duplicating service for programs	9	10	1	4
(d)	Single subject library with other tape centers for other subjects	6	7	3	8
(e)	Evaluation and recommendation center	7	10	5	2
(f)	Other	0	1	0	1
3.	Have one distribution center for the nation act as:				
(a)	Clearing house for information	17	8	1	1
(b)	Forwarding service for tapes	10	4	6	2
(c)	Duplicating service for tapes	8	7	8	3
(d)	Single subject library with other tape centers for other subjects	4	6	7	5
(e)	Evaluation and recommendation center	10	9	5	1
(f)	Other	3	0	1	0

E. Would you make duplicates of your tape collection available to a central distribution agency such as the National Tape Repository? (1)Yes 22 (2)No 1

F. If yes to above question, check your preference for cooperation with a national center.

		(1) Prefer	(2) OK	(3) Poor
1.	Send duplicates free of charge for distribution	3	3	9
2.	Exchange tape programs selected by you and the center	8	10	0
3.	Sell copies at a cost of $ per 30 minutes at 7½ i.p.s.	10	4	5
4.	Other	2	0	0

Section Two: TECHNICAL

I. Master tape and duplication Technology

A. Does your master tape and raw tape storage area have:

			(1)		(2)
1.	Humidity control	Yes	50	No	166
2.	Temperature control	Yes	123	No	185
3.	Wooden storage shelves	Yes	104	No	96
4.	Metal storage shelves	Yes	157	No	64

B. Check the appropriate space for the playing speeds indicated below for your masters and duplicates.

			(1)		(2)
1.	1 7/8 ips	Masters	13	Dupes	29
2.	3 3/4 ips	Masters	51	Dupes	135
3.	7 1/2 ips	Masters	51	Dupes	146
4.	15 ips	Masters	18	Dupes	7
5.	30 ips	Masters	2	Dupes	0
6.	60 ips	Masters	1	Dupes	1
7.	120 ips	Masters	0	Dupes	0

C. Check the appropriate space for the track configuration(s) indicated below for your masters and duplicates.

			(1)		(2)
1.	Full track	Masters	35	Dupes	7
2.	Half track	Masters	21	Dupes	19
3.	Dual track	Masters	20	Dupes	16
4.	Four track	Masters	15	Dupes	8

D. Check appropriate spaces for tape used for duplicates.

		(1)
1.	New tape from hub (bulk	13
2.	New tape from reel	176
3.	Used tape from reel	74

E. What tape do you use for:

1. Masters Brand_______ No._______

2. Duplicates Brand_______ No._______

II. Equipment:

A. Describe your master tape recording equipment.

	Make	Model
1.	________	________
2.	________	________
3.	________	________
4.	________	________

B. Describe your duplication equipment.

	Make	Model
1.	________	________
2.	________	________
3.	________	________
4.	________	________

III. Maintenance: Check the approximate use time of your equipment you normally make the following performance checks and adjustments.

		Frequency				
		(1)	(2)	(3)	(4)	(5)
		Daily	Week	Monthly	6-Mo	Year
1.	Recording and playback heads cleaned	39	62	50	37	16
2.	Recording and playback heads aligned	4	15	35	61	69
3.	Frequency response	3	7	35	50	62
4.	Equalization characteristics	5	5	27	55	60
5.	Adjust guides	5	10	36	46	56
6.	Demagnetize guides and heads	14	43	46	38	34
7.	Take-up and supply tension	4	8	40	46	57
8.	Bias current	8	8	32	46	61
9.	Capstan idler tension	1	6	35	52	56
10.	Other	2	0	5	12	21

Section Three: POSSIBLE DIRECTIONS FOR FUTURE USE OF AUDIO TAPE

I. Tape Cartridge Programs

A. Do you make cartridge tape duplicates within a cartridge? (1)Yes 16 (2)No 239

II. Equipment:

A. Describe your master tape recording equipment.

	Make	Model
1.		
2.		
3.		
4.		

B. Describe your duplication equipment.

	Make	Model
1.		
2.		
3.		
4.		

III. Maintenance: Check the approximate use time of your equipment you normally make the following performance checks and adjustments.

		Frequency				
		(1)	(2)	(3)	(4)	(5)
		Daily	Week	Monthly	6-Mo	Year
1.	Recording and playback heads cleaned	39	62	50	37	16
2.	Recording and playback heads aligned	4	15	35	61	69
3.	Frequency response	3	7	35	50	62
4.	Equalization characteristics	5	5	27	55	60
5.	Adjust guides	5	10	36	46	56
6.	Demagnetize guides and heads	14	43	46	38	34
7.	Take-up and supply tension	4	8	40	46	57
8.	Bias current	5	5	32	46	61
9.	Capstan idler tension	1	6	35	52	56
10.	Other	2	0	5	12	21

Section Three: POSSIBLE DIRECTIONS FOR FUTURE USE OF AUDIO TAPE

I. Tape Cartridge Programs

A. Do you make cartridge tape duplicates within a cartridge? (1)Yes 16 (2)No 239

B. Do you load cartridges for your users? (1)Yes 14 (2)No 223

C. If yes to A, for what make of cartridges? ____________

D. If yes to B, list your equipment. Make ________ Model ________ Year (age) ________

E. If yes to A or B, approximately how many duplicates did you distribute in 1965______, 1966 ____

II. A. Check the estimated amount where you have experienced an increase in the use of audio tapes for educational (instructional) purposes by checking the appropriate box for percent of increase at each level.

		Percentage of increased use							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		0%	5%	10%	25%	50%	75%	100%	Over 100%
1.	Pre-school level	23	7	3	4	2	1	2	0
2.	Elementary	10	9	6	28	25	10	7	5
3.	Secondary	14	9	14	20	24	8	3	7
4.	2 year colleges	9	1	3	3	6	1	3	4
5.	4 year colleges	7	8	5	15	21	5	6	6
6.	Graduate schools	12	5	2	8	3	2	0	2
7.	Adult programs	10	8	3	6	4	1	1	1
8.	Other	7	2	4	1	5	0	1	1

C. Check the following factors as to their importance as being detrimental to the use of audio tapes for educational purposes.

		Degree of Detriment			
		(1) None	(2) Small	(3) Medium	(4) Large
1.	Lack of program sources	21	62	71	60
2.	Lack of information about programs	11	37	84	98
3.	Lack of appropriate programs	11	44	87	73
4.	Lack of knowledge as to how tape can be used effectively	19	53	77	80
5.	Unwilling attitude of educators to employ audio tapes	21	75	79	51
6.	Lack of playback equipment	55	89	37	33
7.	Other	8	7	2	19

D. Check the appropriate column according to your preference for arranging a possible distribution system for audio tapes. Please read through ALL possibilities before checking.

		Preference			
		(1) Best	(2) OK	(3) Poor	(4) Bad
1.	Have your State Department of Education act as:				
(a)	Clearing house for information	63	75	17	17
(b)	Forwarding service for tapes	26	50	42	27
(c)	Duplicating service for programs	44	53	36	24
(d)	Single subject library with other states for other subjects	24	23	51	48
(e)	Evaluation and recommendation center	44	80	20	19
(f)	Other	6	4	3	6
2.	Have a University in your region act as:				
(a)	Clearing house for information	60	65	17	13
(b)	Forwarding service for tapes	52	55	28	17
(c)	Duplicating service for tapes	59	66	23	13
(d)	Single subject library with other tape centers for other subjects	28	40	35	34
(e)	Evaluation and recommendation center	47	68	16	12
(f)	Other	5	6	5	2
3.	Have one distribution center for the nation act as:				
(a)	Clearing house for information	19	10	6	3
(b)	Forwarding service for tapes	119	40	16	11
(c)	Duplicating service for tapes	71	43	29	16
(d)	Single subject library with other tape centers for other subjects	23	30	35	41
(e)	Evaluation and recommendation center	74	54	19	11
(f)	Other	10	3	1	5

E. Would you make duplicates of your tape collection available to a central distribution agency such as the National Tape Repository? (1)Yes 107 (2)No 79

F. If yes to the above question, check your preference for cooperation with a national center.

		Preference		
		(1) Prefer	(2) OK	(3) Poor
1.	Send duplicates free of charge for distribution	30	38	40
2.	Exchange tape programs selected by you and the center	102	54	7
3.	Sell copies at a cost of $ per 30 minutes at 7½ i.p.s.	41	38	24
4.	Other	11	0	2

G. Would you, assuming a reasonable arrangement could be made, consider distributing a National Tape Repository Catalogue with your library identified on the cover with up to four pages for your own introduction? Duplicate tapes would thus be sent to you as needed from the National Tape Repository. (1)Yes [illegible] (2)No [illegible]

2. Have a University in your region act as:

(a)	Clearing house for information	60	65	17	13
(b)	Forwarding service for tapes	52	55	28	17
(c)	Duplicating service for tapes	59	66	23	13
(d)	Single subject library with other tape centers for other subjects	28	40	35	34
(e)	Evaluation and recommendation center	47	68	16	12
(f)	Other	5	6	5	2

3. Have one distribution center for the nation act as:

(a)	Clearing house for information	19	16	6	3
(b)	Forwarding service for tapes	119	40	16	11
(c)	Duplicating service for tapes	71	43	29	16
(d)	Single subject library with other tape centers for other subjects	23	30	35	41
(e)	Evaluation and recommendation center	74	54	19	11
(f)	Other	10	3	1	5

E. Would you make duplicates of your tape collection available to a central distribution agency such as the National Tape Repository? (1)Yes 107 (2)No 39

F. If yes to the above question, check your preference for cooperation with a national center.

		Preference		
		(1) Prefer	(2) OK	(3) Poor
1.	Send duplicates free of charge for distribution	30	33	40
2.	Exchange tape programs selected by you and the center	102	54	7
3.	Sell copies at a cost of $ ______ per 30 minutes at 7½ i.p.s.	41	38	24
4.	Other	11	0	2

G. Would you, assuming a reasonable arrangement could be made, consider distributing a National Tape Repository Catalogue with your library identified on the cover with up to four pages for your own introduction? Duplicate tapes would thus be sent to you as needed from the National Tape Repository. (1)Yes 87 (2)No 62

H. Would you, assuming a reasonable arrangement could be made, consider listing your recordings in a national catalogue distributed by the National Tape Repository? (1)Yes 80 (2)No 46

I. If your answer is yes, check the following possible arrangements.

		Degree of Preferences			
		(1) Want	(2) Good	(3) Don't Care	(4) Not Want
1.	A catalogue identifying those titles in your library from which you could have your individual titles made into your own catalogue	24	32	40	16
2.	Your listings included as a separate list (there are several hundred libraries possible!)	9	17	38	41
3.	A master catalogue with one index by subject area from which subject area catalogues could be made	51	56	13	6
4.	A master catalogue with one index alphabetically	32	51	15	13
5.	A combination of 3 and 4	80	35	13	2
6.	Other	0	0	2	1

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Summary Report on Study to Determine the Feasibility of a Coordinated System of Distribution for AUDIO TAPES

by Louis H. Brown
PROJECT DIRECTOR

September 1967

A study conducted by the Bureau of Audiovisual Instruction of the University of Colorado under P.L. 81 152, Title III, P.L. 85-864 as amended, Title VII, from the U. S. Office of Education

SUMMARY OF FINAL REPORT

STUDY TO DETERMINE

the

FEASIBILITY OF A COORDINATED

SYSTEM OF DISTRIBUTION

for

AUDIO TAPE MATERIALS

Project No. 5-1157
Contract No. OEC4-6-051157-1635

by

Louis H. Brown
Project Director
University of Colorado Boulder, Colorado

September 1967

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U.S. Department of

Health, Education, and Welfare

Office of Education

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INNOVATE

--"to make changes"

--"to introduce novelties"

INNOVATION

--"to make changes"

--" a change thus accomplished"

Is an innovation a reality
until it has been accomplished
to a point of general utility?

PURPOSE:

The prime purpose of this study as denoted by the title was to determine the feasibility of a coordinated system of distribution for audio tape programs of direct educational value. The study was restricted to non-commercial audio tape programs other than those directly concerned with foreign language or music instruction.

Concurrent with this objective were those of identifying existing educational audio tape libraries and problems encountered in their operation. On the basis of these experiences, guidelines for audio tape libraries were developed.

This study was Phase I of a two-phase proposal. The second Phase would implement Phase I should the feasibility be strongly positive in this direction.

PROCEDURE:

Existing educational audio tape libraries were initially identified through correspondence with potential libraries as identified by state education departments, audio equipment and supply representatives, known tape libraries and such groups as the National Educational Radio Group of NAEB. The records of the National Center for Audio Tapes (formerly the National Tape Repository) were also employed.

A draft questionnaire was critiqued by a conference of fifteen persons knowledgeable in the audio field. This instrument was thus revised, tested and approved as a means of identifying pertinent characteristics of tape libraries. A second questionnaire was designed to ascertain the utilization of audio tapes by a selected sample of public schools. Visitations to selected audio tape libraries were made to effect an on-site evaluation and potential.

FINDINGS AND CONCLUSION:

The study has shown that:

A. Audio tapes are serving an educational need that audio tape utilization can be expected to expand at the elementary level, secondary, and college level.

Eighty-four percent (84%) of the public schools responding to the survey foresee an expanded use of audio tapes for independent instruction. One-fourth of this group see this expansion as being over 100% of present utilization.

Sixty-four percent of the schools estimate from a 25% to over a 100% increase in use of audio tapes for enrichment kinds of programs and the percentage is even higher for use with individualized instructional programs.

Audio tape library responses verify this trend. The experience of these libraries note increased requests for audio tape (25% to 50% and up) from elementary and secondary schools and four year colleges.

Expanded use of more sophisticated audio systems is expected in the next five years by two out of three of the respondent schools.

B. The largest detriments to the expanded use of audio tapes is the lack of programs, sources of programs, and information describing programs.

The lack of programs was cited by 97% of the responding schools as being detrimental to the expanded use of audio tape materials while 61% of the libraries reporting note the lack of information about programs as being the largest single detriment.

The unwillingness of teachers to use audio materials was considered a small and not a large detriment by over two-thrids of the school districts. This factor was similarly considered to be small by the tape libraries. Personnel interviews indicated in all but one instance that faculty would use audio materials if they were available.

C. There is a very strong desire to exchange audio programs and to cooperate in the publication of a single catalog.

Eighty-four percent (84%) of the libraries noted that they were willing to exchange audio tape programs and only one reporting school indicated that they were not willing to make their tapes available to a distribution system.

Only twenty percent of the answering libraries were not willing to cooperate in the production of a national audio tape catalog. Personal conversations with selected libraries substantiated the positive nature of the 80% of the respondees.

D. There are at least thirteen college audio tape libraries across the country willing and able to serve as regional centers for an audio tape distribution system.

E. Several other conclusions have been made by the project staff.

(1) The use of audio tapes is expanding rapidly at all levels of education.

(2) There is currently a limited number of tape titles available at any given institution.

(3) There is no individual tape library in the nation capable of meeting the increased demand for audio tape materials.

(4) There is no systematic exchange of tapes.

(5) There is no systematic method of securing new programs.

(6) THERE IS A NATIONWIDE NEED TO ESTABLISH A COORDINATED DISTRIBUTION SYSTEM INCLUDING ACQUISITION OF NEW PROGRAMS.

RECOMMENDATIONS:

Based on the conclusions derived from the data and information provided by this study, the following recommendations are urged. It is suggested that the reader refer again to the definition of "innovation" given in the preface.

1.A. Funding should be provided to pursue and effect a regional distribution system for the procurement and disbursement of audio tape materials. Since such a system would benefit educational institutions of all levels and in every section of the country, this project is a justifiable endeavor for the U.S. Office of Education.

1.B. Geographic regions should be identified with a tape duplicating center housed in a University or State Department of

Education library and be organized as to format and methods of selecting, recording, evaluating, and duplicating audio tape materials. In cooperation with other regional centers, each center would maintain:

(a) Standards for recording and duplicating audio programs and for coding and indexing descriptions of audio programs.

(b) Listings for inclusion in a single national audio tape catalog and provisions for distribution within the region served.

(c) An organized system for securing new audio tape programs from educational institutions and agencies within their region for distribution to other regional centers.

2. This recommended distribution system would work very closely with such groups as the National Association of Educational Broadcasters, the National Education Association and the Association for Recorded Sound Collectors.

3. The recommended distribution system would not distribute commercially available materials and would not seek to distribute strictly foreign language or music programs.

4. Professional groups at all levels of education should be encouraged to identify the types of specific audio tape materials that would have value for instruction. Such groups should be encouraged to send their evaluations of audio programs to their source of the said programs.

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APPENDIX E

GUIDELINES FOR AUDIO TAPE LIBRARIES

Prepared by the
University of
Colorado
Boulder

GUIDELINES
FOR
AUDIO
TAPE
LIBRARIES

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INTRODUCTION

These guidelines have been developed to assist persons working with educational audio tape collections. The attempt in the first section is to provide a ready reference of requirements or minimum standards for the various aspects involved in an audio tape library operation. These minimum standards for maintaining an audio tape collection for duplicating are intended to establish an understandable nomenclature among tape collectors that will help to enhance the exchange of quality audio tape programs for education.

Section II of these guidelines is designed primarily for the beginning audio tape collector. This section contains explanations of terms, procedures, and a few "how to do it" sequences. The approach has been to use everyday language as much as possible to clarify this information for the nontechnical audio tape supervisor.

Dr. Louis H. Brown
Project Director

James S. Mills
Project Coordinator

SECTION I

Minimum Standards for Audio Tape Libraries

A. EQUIPMENT: Equipment used in duplicating audio tapes should have at least the following characteristics:

___ *Frequency response—50 to 15,000 Hz ± 4 db at 7½ ips.*

___ *Frequency response—50 to 10,000 Hz ± 4 db at 3¾ ips.*

___ *Wow and Flutter—No more than .2% rms at 300 Hz.*

___ *Signal-to-Noise Ratio—50-60 db.*

___ *Equalization—Standard N.A.B. and/or E.I.A. characteristics.*

___ *Recording speed at 7½ ips or 3¾ ips.*

___ *Duplication speeds up to 60 ips.*

___ *Full track configuration.*

B. MAINTENANCE: Maintenance of equipment should follow the program and schedule given below:

___*Lubricate equipment periodically.*

___*After 8 hours of use, clean all heads.*

___*After 40 hours of use, demagnetize heads and guides.*

___*After 100 hours of use:*
  *Align all heads**
  *Check frequency response**
  *Check equilzation characteristics**
  *Check record and playback levels**
  *Check signal-to-noise ratio**
  *Check bias current and frequency**

___*Every 4 to 6 months:*
  Check tensions.
  Check electric components, motors, belts, etc.
  Check tubes, transistors, and circuit components.

___*Check every tenth duplicate audibly for quality.*

*Commercial alignment tapes with standard frequencies and levels are recommended.

C. TAPE: The magnetic tape used to record masters (prime sources) for a collection should meet the following designations:

____ *Brand name tape of first line quality.*

____ *¼ inch wide.*

____ *1½ mils thick.*

____ *Polyester backing material.*

____ *Frequency response of 50 to 15,000 Hz ± 4 db at 7½ ips.*

____ *Frequency response of 50 to 10,000 Hz ± 4 db at 3¾ ips.*

D. TAPE STORAGE AND CARE: The following provisions should be maintained for storing audio tapes:

____*Wind tape on reels evenly and loosely.*
____*Store tape reels in boxes or containers.*
____*Store tape boxes on edge.*
____*Store tapes on wooden shelves.*
____*Rewind each tape once every six months.*
____*Use only enough tape for program.*
____*Use white leader tape at beginning of program.*
____*Use yellow tape at tail end of program.*
____*Label both white and yellow leaders with code (i.e., Alpha code**).*
____*Keep humidity between 40-60%.*
____*Store tapes at room temperature—68° F.*
____*Identify clearly the tape box or container with the following:*

*Alpha code number**
Title
Date of production or acquisition
Series title code
Running time of program

*Information regarding system used by the NCAT may be acquired on request.

E. TAPE PROGRAM RECORD KEEPING: The information noted below should be recorded and filed for future reference:

___ *Title of individual program*
___ *Series title and number of programs in the series*
___ *Subject area*
___ *Grade level*
___ *Description of program*
___ *Year of production and/or acquisition*
___ *Running time*
___ *Producer*
___ *Distributor*
___ *Use restrictions*
___ *Production release*
___ *User comments*
___ *Number of times each program is used*

F. EVALUATION: The evaluation of audio programs should include at least the following checks:

____*Check for technical quality.*

Evaluation of technical quality by competent technical persons who are capable of checking for program clarity, frequency range (50 to 10,000 Hz at least), adequate level, and background noise.

____*Check for content quality and appropriateness.*

Two of the following approaches should be employed:

a. By subject area teacher's committee

b. By subject area specialist

c. Endorsement of producer and/or distributor

d. Evaluation form from user (see appendix)

e. Adult teaching assistants of graduate students

SECTION II

Descriptive terms and procedures related to:

A. EQUIPMENT

The terms used to identify the recording and/or duplicating equipment for producing tape recordings with the characteristics noted in section one are explained below. (See appendix for technical references).

1. Frequency response refers to the number of times per second (formerly "cycles" per second or C.P.S.–now called "Hertz" or H_z) air is sent into vibration by a sound source. Electronically, it refers to the number of times that the current (flow of electrons) fluctuates or changes directions per second. A "frequency response" specification for a tape recorder or duplicator indicates the recorder's ability to reproduce faithfully the complete combinations of frequencies supplied to it.
2. The specification 50 to 15,000 H_z ± 4 db means that the equipment is capable of reproducing any frequencies between 50 and 15,000 H_z and, in this range, the frequency will not become more than 4 decibels louder or softer than the reference intensity. (A decibel is a relative measure of sound intensity, abbreviated as db, expressing the ratio of one sound intensity to another.)
3. The specification of 7½ ips (inches per second) means that 7½ inches of tape pass through the recorder every second. Likewise, 3¾ ips means 3¾ inches of tape pass through the machine every second. In general 7½ ips will give a wider frequency response than 3¾ ips.
4. Wow and Flutter specifications indicate the extent to which recorded tones are distorted by variations in tape speed and is expressed as a percentage. Wow is a slow undulating change in pitch of tone, caused by slow moving mechanical parts, at a rate of approximately 1 to 5 times per second. Flutter is a more rapid change in pitch variation and is caused by faster moving mechanical parts. The rate is between 5 and 200 times per second. At these rates, tones may seem steady but sound hoarse and raspy.
5. The signal-to-noise ratio is the ratio of the recorded signal level to the inherent background noise level in the electronics (tube heater hum, transistor thermal noise, stability of circuit wiring, etc., and noise level of the tape itself). This specification indicates the comparison of the level of intensity of the program signal to the level of intensity of the background noise. This relationship is expressed in decibels (db). The larger the db figure is, the better the recorder or duplicator will reproduce the program.
6. Equalization refers to the fact that by itself a recorder's or duplicator's magnetic head produces a frequency response where the mid-range frequencies (200-3,000 H_z) would be reproduced at double the output for each octave increase in frequency. But as low and high limits in frequency are approached, losses accumulate and head output drops sharply.

   The amplifier circuitry in good quality equipment is designed to compensate for these head peculiarities by providing more amplification at those frequencies where the head produces less output. This amplifier frequency compensation is called "equalization."

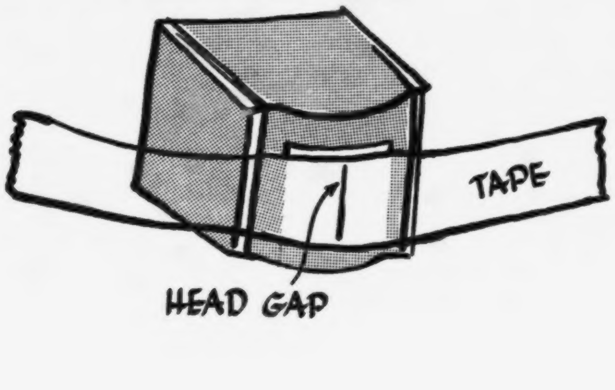
   Most good quality equipment will have provisions for providing standard equalization characteristics at whatever speeds they operate. Equalization standards have been established by the National Association of Broadcasters and the Electronics Industries Association. Reference to these standards can be found in the appendix.

7. The recording speed of 7½ ips is recommended for original master recording because it allows best frequency response with the equipment currently available and will permit speed reduction to 3¾ ips used as a duplication master.

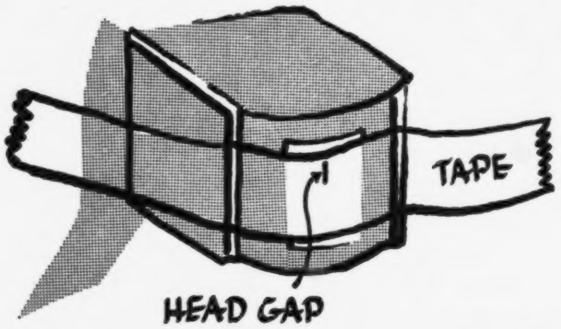
8. Tape duplicators commonly available operate at several speeds such as 15, 30, and 60 ips. In small operations two or more tape recorders may be connected together in such a way as to make one or more copies of a tape program at regular playing speeds (7½ or 3¾ ips). Tape duplicators operating at 15, 30, and 60 ips are considered high speed duplicators because they duplicate or copy programs two or more times faster than the normal playing speeds thereby saving considerable production time. Duplicating equipment in a system may operate at different speeds in order to produce duplicate copies of a slower playing speed. Tape recorders used in the typical classroom generally will operate at 3¾ ips and 7½ ips. The recording speed of 3¾ ips allows more economical use of tape (half as much tape as 7½) and still provides adequate frequency response for voice recordings.

9. Full track configuration is where the audio signal path is essentially the full width of the ¼ inch tape. The actual track width dimension is slightly less than ¼ inch to provide a "guard band" on each of the edges of the tape. This track designation will allow maximum flexibility for editing and duplication activities with most of the equipment currently in use whether they are full track or single half track machines.

FULL TRACK HEAD

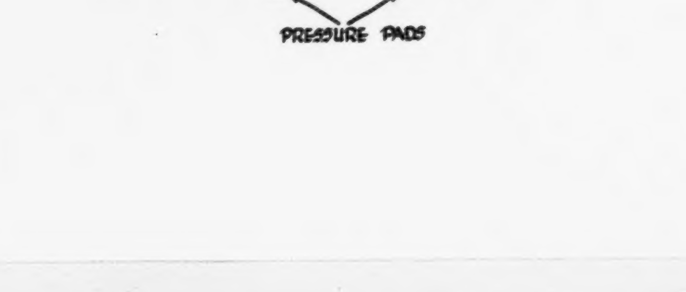


HALF TRACK HEAD



With a full track recording, the tape can thus be played back on almost any type of playback equipment. Special track configurations (i.e., ½, ¼, or ⅛) can be made by individuals as they require them.

10. Operational Aspects
    a. Tape Position (for most recorders and/or duplicators)



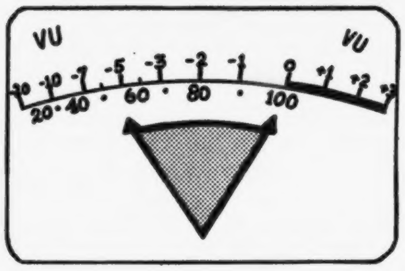
Professional machines may not have pressure pads. Intimate head-to-tape contact is maintained by tensions applied to the tape in operating modes (play, record, fast forward, and rewind).

b. Tape Speed and Running-Time Chart

Tape	Running Time Through Recorder				
Length	3¾ ips	7½ ips	15 ips	30 ips	60 ips
300'	16 min.	8 min.	4 min.	2 min.	1 min.
600'	32 min.	16 min.	8 min.	4 min.	2 min.
1200'	64 min.	32 min.	16 min.	8 min.	4 min.
1800'	96 min.	48 min.	24 min.	12 min.	6 min.
2400'	128 min.	64 min.	32 min.	16 min.	8 min.

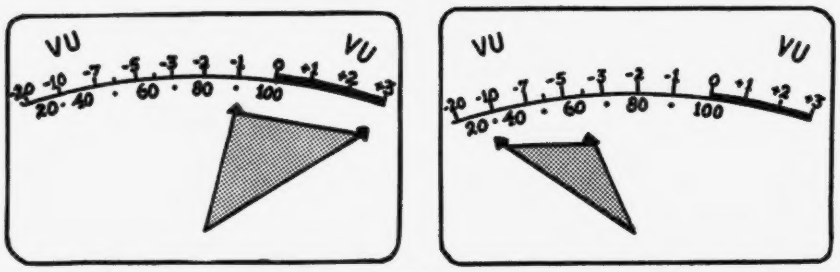
c. Recording level indicator is a device on a tape recorder or duplicator to indicate the level at which the recording is being made and which serves as a warning against under or over recording. It may be a neon bulb, a "magic eye," or a VU (Volume Unit) meter.

PROPER SETTING



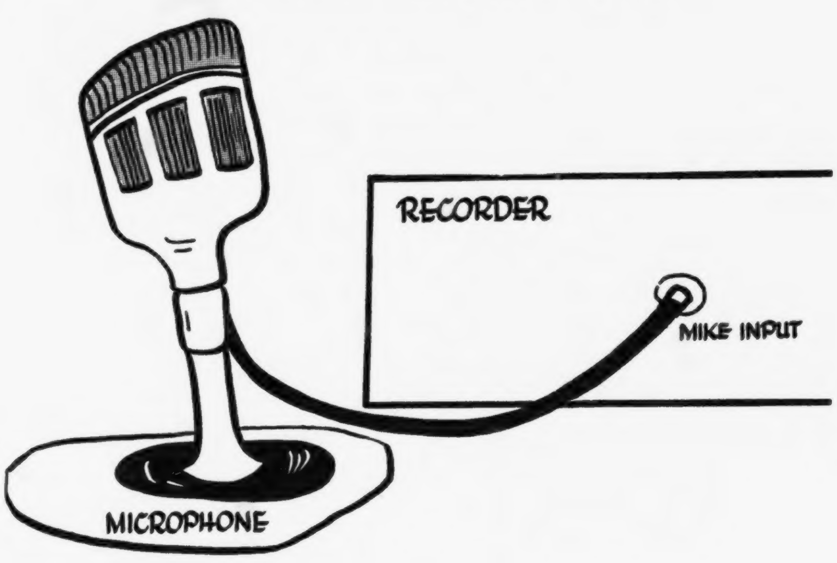
The VU meter indicates audio power levels in decibels relative to a fixed reference level. These indicators reflect a decibel (db) scale which is a unit for expressing the ratio of two sound levels and maintaining them within distortion limits of the tape. VU meters are easier to read and in most cases are more reliable in maintaining recording levels.

IMPROPER SETTING

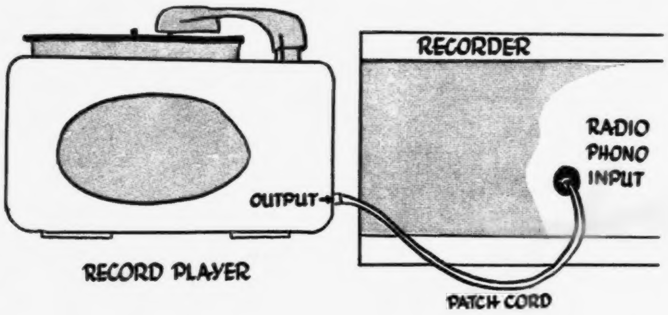


d. When beginning a recording session, regardless of the program source, make a trial run (dry run) by recording a segment and listening to it to make sure of optimum settings and levels for a given situation. Program sources may be:

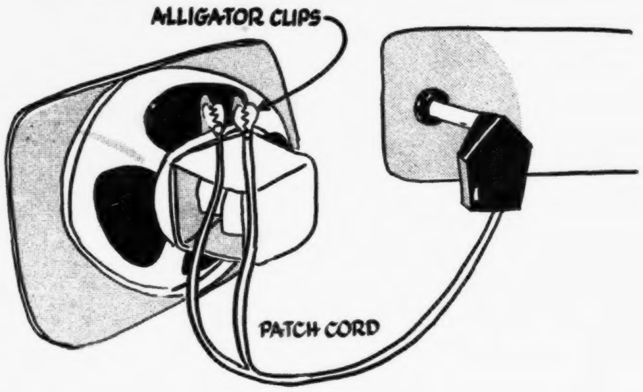
(1) Microphone. Connect microphone cable into tape recorder at the "microphone" input jack.



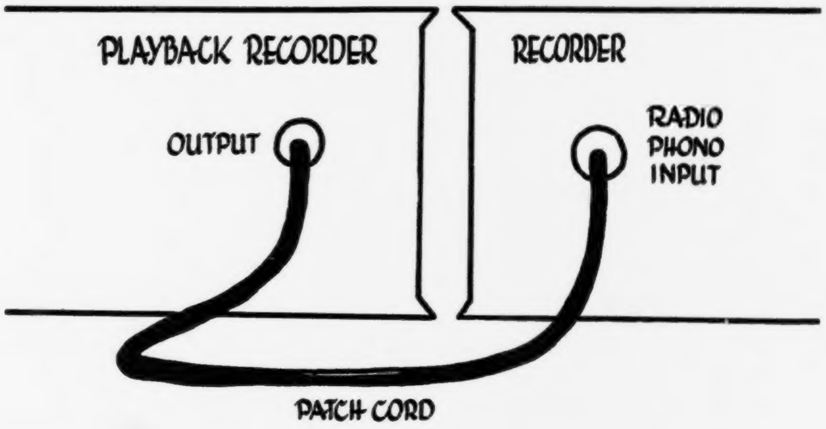
(2) Phonograph or Radio. Connect phonograph output into the tape recorder "Radio/phono" input jack from the output connection on the phonograph or radio.



(3) Some phonograph and radio receivers (AM and/ or AM-FM) and television sets do not have output receptacles for connection directly into a tape recorder. A patch cord with clips on one end and the proper plug for connecting into a tape recorder on the other end is required. Connect the clips on one end of the patch cord to the voice coil terminals of the speaker. Connect the plug end of the patch cord into the "Radio/phono" input jack of the recorder.

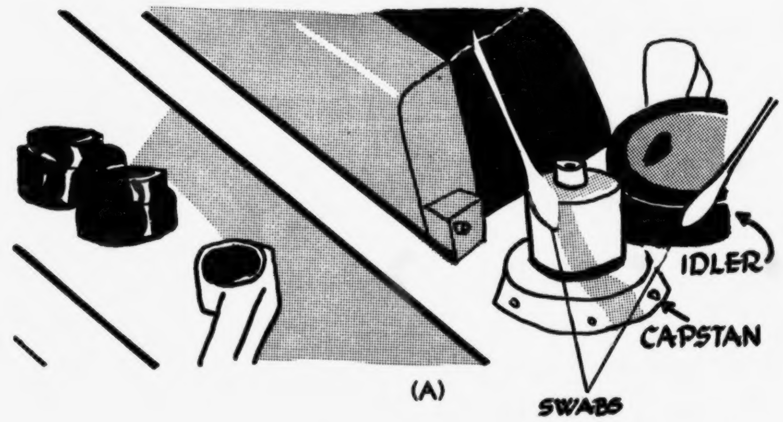


(4) A program may be recorded (duplicated from one tape recorder to another) by connecting the output of the playback machine into the "Radio/ phono" input of the recording machine.

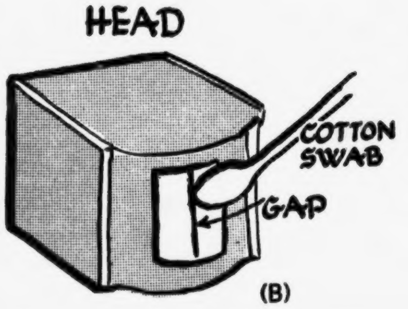


B. MAINTENANCE

1. Lubrication—Most professional recording and duplicating equipment requires that capstan and idler bearings be lubricated every 3 months or 1000 hours of operation. Most of the time motors in this equipment are permanently lubricated internally. The guide to proper lubrication procedures and lubricants will be the manufacturer's recommendations.
2. Cleaning—The (a) capstan, capstan idler (pinch roller), (b) head faces, and (c) tape guides should be cleaned often (sometimes daily, with heavy use) with xylene, commercial recording head cleaner or ethyl alcohol applied with a cotton swab or soft cloth.



(A)



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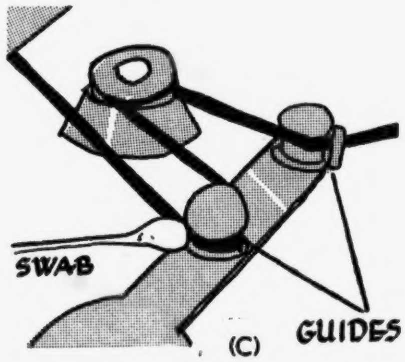
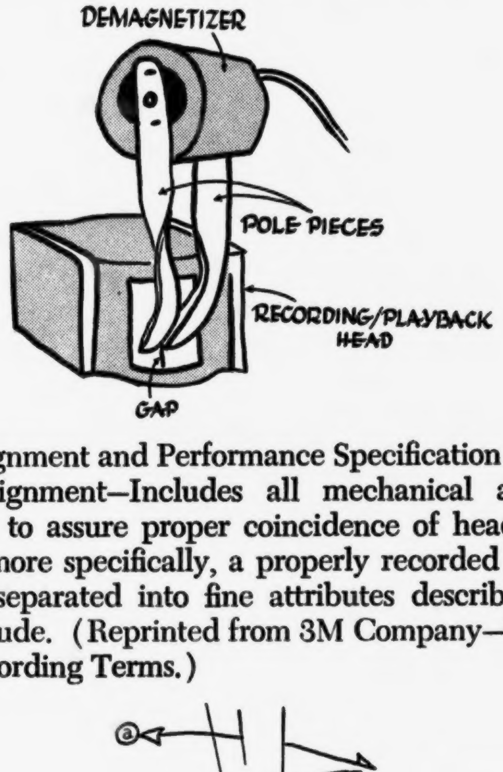


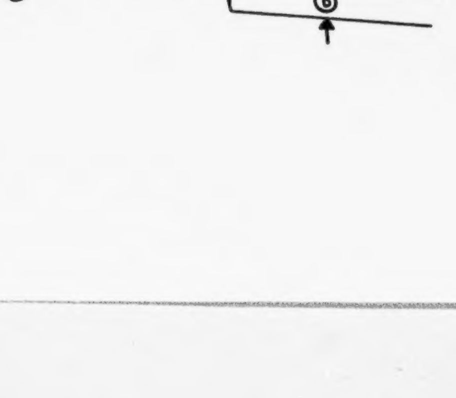
(C)

The buildup of oxide particles and lubricant from the tape (all tape has lubricant in its oxide and binder composition on the head face can adversely affect the performance characteristics and yet be undetectable by the naked eye.

3. Demagnetize Heads—A degree of residual magnetism may occur over a period of time on all heads. This magnetism, as it becomes stronger, will tend to erase the higher frequencies recorded on the tape. This same kind of magnetism will occur on the tape guides but to a much lesser degree. To eliminate or minimize this problem, it is necessary to demagnetize the heads and guides. This is accomplished by moving the pole pieces of a head demagnetizer slowly up and down, very close and parallel to each head gap, but not touching it. The pole pieces of a demagnetizer could scratch the head face and cause serious damage if allowed to contact the head face.

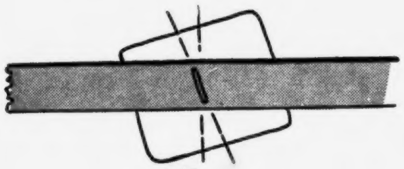


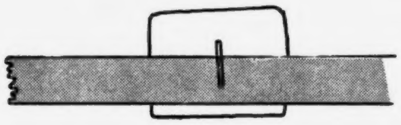
4. Head Alignment and Performance Specification Checks.
Head Alignment—Includes all mechanical adjustments necessary to assure proper coincidence of head gap with tape, or more specifically, a properly recorded tape track. May be separated into fine attributes describing correct head attitude. (Reprinted from 3M Company—Glossary of Tape Recording Terms.)



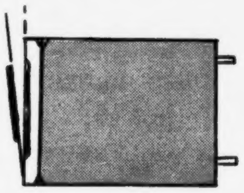
a. Azimuth or skew, in which width dimension (corresponds with track width) or gap is at exactly a 90 degree angle with tape edge.

b. Height, in which the gap width dimension is centered on the track location.


(A)

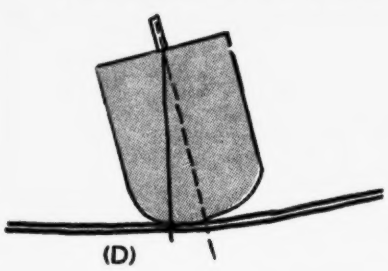

(B)

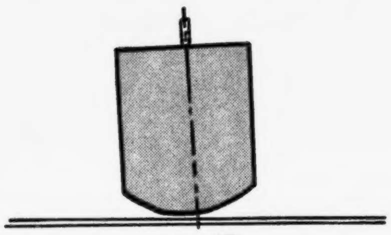
c. Tilt, in which the face of the head must be simultaneously tangent to the same degree with both edges of the tape and without distortion of either of the latter.


(C)

d. Tangency, the adjustment to assure that the tape is tangent with, and contacting, the portion of the head face containing the head gap.

e. Contact, the adjustment toward or away from the tape to assure proper contact pressure between head and tape (wrap). Not as critical with machines employing pressure pads at the heads.


(D)


(E)

5. Frequency, response, equalization characteristics, record and playback levels, signal-to-noise ratio, bias current and frequency, tensions (take-up, hold back, and brake), and condition of electronic components are items that should be checked on a regular schedule to insure maximum quality reproduction of tape programs. Operational and technical manuals provided by the manufacturer will be the best and most complete instructions to follow when

C. TAPE

Brand name tape of first-line quality should be used in a tape library to insure the production of consistently high quality recording and duplicates. The type of tape backing material that is highly recommended for use in a tape library is one that has polyester properties. Polyester is strong and unlikely to break, and is preferred for long-time storage and use because it is virtually unaffected by humidity and temperature extremes.

The tape should be ¼ inch wide by 1½ mils in thickness, be able to accept (record) and retain audio frequencies up to 15,000 H_z ± 4 db, and have good signal-to-noise characteristics (40-60 db).

a. Original master tapes should be produced on high quality equipment under the best acoustical conditions possible and recorded at 7½ ips on a full track configuration.

b. "Working" or "duplicating" masters may be produced to save the original masters.

c. Tape for duplicate copies should be of the same quality as that recommended for masters.

d. It is recommended that the duplicate copies produced be recorded at 3¾ ips and full track.

The National Center for Audio Tapes will distribute programs recorded at 3¾ ips, full track on ¼ inch polyester tape from master tapes recorded at 7½ ips on ¼ inch polyester tape.

D. TAPE STORAGE AND CARE

1. Wind tape on reels loosely and evenly. Tape may become stretched or permanently distorted if wound too tightly. Observation of the tape reels will usually indicate when tapes are wound too tightly; cinching and buckling may be apparent.

2. Store tapes in dustproof boxes, on edge, and on strong shelves of wood to protect them from damage.

3. The tape storage area should be maintained at room temperature (68° F.) and humidity between 40 and 60 percent.

4. Store tapes away from stray magnetic fields. Permanent magnets and electromagnets (small electric motors, etc.) can cause erasure of the recorded material if brought very close to the tape.

5. If tapes are to be stored for long periods without use, take them off the shelf and rewind them at least once every six months. Print through from layer to layer of tape can be minimized by rewinding periodically. This problem occurs when the magnetic field present on one section of tape may be strong enough to impress itself on the tape layer adjacent to it. Tape that is wound very tightly and high temperatures will tend to increase these effects.

6. Master tapes should be identified and marked clearly on box, reel, and leaders.

7. Items that should be indicated on each tape box or container are:
   a. Alpha code number* or file number to designate an alphabetical sequence number or other filing identification number or code that is unique for each program. This number should appear on leader tape on each program and tape reel.
   b. The accurate and complete title of each tape.
   c. The date of production or acquisition.
   d. The series to which each tape belongs, if it is part of a series of programs. With more identical titles, this may be the only way to distinguish one title from another.
   e. The running or playing time of each program. The time should be shown accurately in minutes.

8. In some libraries where duplication volume is high, much time can be saved by duplicating programs backwards; that is, feeding the master program tail end first, making it possible to pull finished copies off the "slave" machine(s) ready to play.

9. †Splicing magnetic tape is the joining of two sections of of tape. A good splice is never heard; it must be strong

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*Information regarding system used by the National Center for Audio Tapes is available on request.

†Reprinted from 3M Co.

and lasting; it must not get gummy or sticky with age. The following technique is recommended for splicing audio tape.

a. Hold overlapped ends of magnetic tape securely between fingers and cut at shallow angle—about 45 degrees—for maximum strength and flexibility of splice.

b. Butt the cut ends of the tape in a splicing block without overlapping them. Make sure you apply the splicing tape to the shiny side of the magnetic tape.

c. Apply small section of splicing tape. Use the 7/32" size and apply it parallel with the magnetic tape. Rub splicing tape firmly with fingernail to iron out air pockets for positive adhesion.

d. If a splicing block is not available, lay magnetic tape on a flat surface. Butt the cut edges carefully and hold in position with index and forefinger. Apply short strip of ½" or ¾" wide splicing tape diagonally across splice and rub firmly to remove all air pockets.

e. If splicing tape is wider than the magnetic tape used, trim off excess cutting into the tape very slightly. This eliminates danger of exposed adhesive gumming up recording head or sticking to adjacent layer of magnetic tape.

10. Editing involves removing or adding segments to a tape recording. If the tape is to be distributed, permission of the original producer is required.

    a. Listen to the recorded tape and list portions to be changed. (An index counter on the recorder can be very helpful here; however, these counters usually show revolutions of take-up and are useful only as reference indicators.)

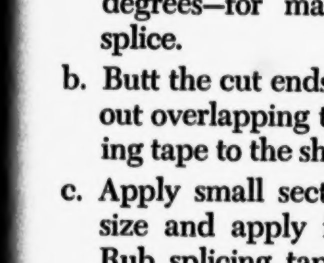
    b. Replay the tape and stop at these points.

    c. "Sound" the tape by moving it manually back and forth across the recorder head. This will help pinpoint the editing spot.

    d. Mark cutting points exactly with a grease pencil on the shiny backing of the tape.

    e. Cut tape at the exact editing point and splice, using splicing method in section, "How to Splice." (Be sure to remove all grease pencil markings before applying splicing tape.)

    f. Repeat the same procedure at the next editing point.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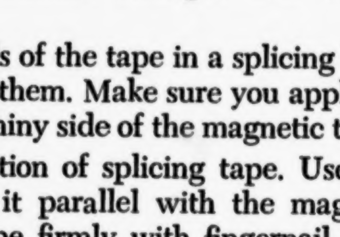
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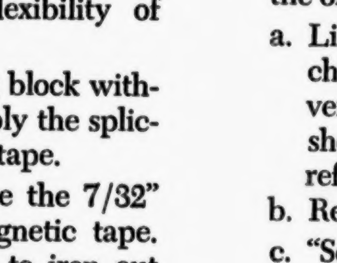
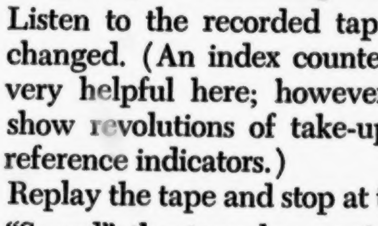

(C)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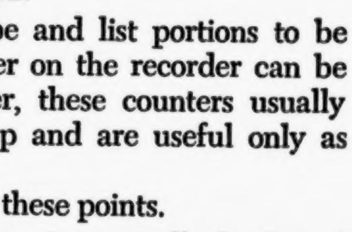
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E. TAPE PROGRAM RECORD KEEPING

Files containing the following types of information should be maintained for each tape title:

1. Title of the individual program.
2. The series title of which the individual program is a part, if possible. The number of programs in a given series and their proper sequence should be recorded for each *series* title.
3. Subject area. Use the Library of Congress classification system.
4. Grade level. Use two designations to indicate the range of grade levels for which the program is most appropriate (K-preschool; P-primary; I-intermediate; J-Junior High; S-Senior High; C-college and A-adult).
5. Description (annotation) of individual programs. Descriptions should follow the American Library Association standards.
6. Year of production. (If not available, record the year of acquisition by the library.)
7. Running time of individual program in minutes.
8. Producer of the program.
9. Prime distributor of the program (or known distributor).
10. Use restrictions. Note whether or not the program may be used by broadcaster, other than educational institutions, etc.
11. Seek and file the producers release that allows you to distribute the program. Note any restrictions.
12. File users comments(see example form in Appendix C).
13. Record the number of times a given title has been requested.

The use of data processing techniques enhances this record-keeping process. Information is available upon request from the National Center for Audio Tapes on their data processing system.

F. DEFINITION OF TERMS

The following terms have been defined as noted by NICEM (National Information Center for Educational Media). These definitions may be applied to audio tapes as one type of media.

Distributor

The "distributor" is the person or the organization handling the exclusive (or nearly exclusive) sale, lease, or rental release of duplicates of the medium program.

Producer

A "producer" is the person or organization, sometimes called the sponsor, who originally created and/or owned the media program.

Production Credit

"Production credit" goes to the person or organization responsible for the detail of physically producing the media program. Activities, such as photography, editing, and sound work, may be done by someone rather than the producer.

SECTION III

Appendix A

Part 1—Audio Tape Utilization

The following refer to articles and reports of how audio tape has been utilized in learning situations. Listings are given alphabetically by title. Some are references to a specific subject area while others include several subject areas.

Audio-Simulation in Counselor Training, J. H. Beaird and J. T. Standish; Teaching Research Division, Oregon State System of Higher Education, 1964.

"Audio Tape Experiment in Creative Thinking," E. P. Torrance and R. Gupta; *AV Instruction,* December 1964.

Audiovisual Instruction Materials and Methods, J. W. Brown, R. B. Lewis, and F. F. Harcleroad; McGraw-Hill Book Co., Inc., 1959.

Audiovisual Materials and Techniques, 2nd edition, James S. Kinder; American Book Company, 1959, Chapter 10.

Audiovisual Methods in Teaching, Edgar Dale; Dryden Press, 1954, Chapter 17.

Audiovisual Procedures in Teaching, Lester B. Sands; Ronald Press, 1956, Chapters 23 and 24.

"Can Ear Training Improve English Usage?" H. O. Moyer; *Elementary English,* Vol. 33, pp. 216-219, April 1956.

Creative Teaching With Tape, Rever-Mincom Division, Minnesota Mining and Manunfacturing Company, 2501 Hudson Rd., St. Paul, Minnesota 55119.

"Drama Tapes," *AV Instruction,* May 1962.

"Enrich Art History With Sight and Sound," V. L. Florian and D. F. Novotny, *Arts and Activities,* September 1965.

"Evaluating Reading With the Tape Recorder," H. C. Fox; *Instructor,* Vol. 64, p. 111, November 1954.

"Exchange of Taped Discussions Between Students of Negro and White Colleges," L. Newson and W. J. Gordon; *Speech Teacher,* November 1962.

Etensive Bibliography on Magnetic Recording, The John Crerar Library, 86 E. Randolph Street, Chicago, Illinois 60611.

"Foreign Languages Stage a Comeback," Fred Hechinger; *Saturday Review,* February 16, 1963, pp. 64-68. (Other related articles in this issue.)

"Group Supervision, A Technique for Improving Teaching Behavior," E. J. Armiden; *National Elementary Principal,* April 1966.

"How Tape Recording Can Help Your College Bound Students," A. M. Bloom; *School Management,* February 1962.

"Increasing Listening Skills With Tape Recorded Lessons," L. K. Nichols; *AV Instruction,* September 1966.

"Influences of Tape Recordings and Related Feedback on Prospective Teachers' Self-Evaluation of Their Teaching Performance," F. F. Fuller and D. J. Veldman; *American Psychologist,* 1963.

"Listening Centers in the Kindergarten," L. G. Gotkin and F. Fondiller; *AV Instruction,* January 1965.

Magnetic Recordings and Visual Displays as Aids in Teaching Introductory Psychology to College Students, R. E. Johnston; Drexel Institute of Technology, 1961.

New Media in Higher Education, J. W. Brown and J. W. Thornton, Jr.; Association for Higher Education and Department of Audiovisual Instruction, NEA, 1963.

"Oral Reading is Fun," R. M. Wilson; *Reading Teacher*.

"Our Comic Strip Project for Blind School Children," J. T. Frank; *School Activities*, October 1962.

"Our Proposed Operation Friendship Through Voicespondence," J. T. Frank; *School Activities*, January 1964.

Prediction of Personality Inventory Response From Tape-Analysis, W. J. Mueller; December 1962.

"Prime-O-Tec, A New Approach in Reading," W. C. Jordan; *Instructor*, September 1965.

"Save Your Treasures," Devlin, Madison; *Audiovisual Instruction*, Vol. 1, pp. 204-206, December 1956.

"Sense-Impression Responses to Differing Pictorial and Verbal Stimuli," W. Bourisseau, O. L. Davis, and K. Yamamoto; *AV Communication Review*, 1965.

"Six-Year Olds are Reading Faster, Better With Electronic Aids," W. C. Jordan; *AV Instruction*, September 1966.

Sound Language Teaching: The State of the Art Today, J. S. Holton and others; University Publishers, 1961.

Sound Seminars, Dr. E. R. Miller, Dir., 50 East Hollister, Cincinnati, Ohio 45219.

"Spelling, Self-taught From Magnetic Tape," D. Johnson; *Educational School Journal*, November 1962.

A Study of the Use of Tape Recordings As a Substitute for Classroom Observations in Teacher Education, O. J. Mizer; Unpublished doctoral dissertation, State University of Iowa, 1964.

"Tape Can Make Two Teachers Out of One," M. L. Bierbaum; *Elementary Grade Teacher*, January 1965.

"Tape Contest: An Evaluation," R. O'Brien; *School Music*, August 1965.

"Tape for Top Listening Appeal," M. Herrick and H. C. Ruark, Jr.; *Educational Screen and Audiovisual Guide*, Vol. 36, pp. 352-353, July 1967.

"Tape Goes Back to School and The Case for Sleep Therapy," *Tape Recording*, August 1965.

Tape Grading Links Instructors Help to Students, B. Hawkinson; October 1964.

"Tape: Multiplier of Teacher's Time and Personality," Sister Mary Theresa Rentano (O.S.B.); *Audiovisual Instruction*, Vol. 7, pp. 368-371, June 1962.

"Tape Recorded Lectures in the College Classroom," W. J. Popham; *AV Communication Review*, 1961.

"Tape Recorded Lectures in the College Classroom—II," W. J. Popham; *AV Communication Review*, 1962.

"Tape Recorder as a Coaching Aid," Q. Constanz; *Scholastic Coach*, Vol. 24, p. 36, 1965.

"The Tape Recorder in Elementary Teaching," L. B. Sands; *Grade Teacher*, Vol. 75, p. 46, March 1958.

"Tape Recordings are Goodwill Ambassadors," M. Manley; *Instructor*, Vol. 65, p. 18, January 1956.

"Tape Teaching of English," *Media Message*, Vol. 1, Abstracts 1-8, November 1, 1965, The Center for Research in Educational Media Design, University of Iowa, 221 S. Linn St., Iowa City, Iowa 52240.

"Taped Evaluation for English Composition," E. J. Krill; *AV Instruction, December* 1963.

"Taped Program Stimulates Attendance at Parent's Night," M. J. Welsh; *Grade Teacher*, November 1964.

Tapes for Teaching, R. C. Brower; Minnesota State Department of Education, 1951.

Taping Oral Exams, M. Smith, March 1965.

"Taping Pen Pal Letters," D. E. Stewart; *Arizona Teacher,* September 1966.

"Teaching Double-size Typing Classes With Tape," G. F. Prieb; *Business Education World,* February 1966.

"Teaching Spelling With Tapes," *Media Message,* Vol. 1. No. 2, Abstracts 9-21, February 1, 1967. The Center for Research in Educational Media Design, The University of Iowa, 221 S. Linn St., Iowa City, Iowa 52240.

"Teaching Tape Remedies—Mispronounciationitis," N. Polette; *School and Communications,* February 1966.

"Teaching Typing With Tapes," A. Schellstede; *Business Education World,* April 1964.

"Telecommunications in Foreign Language Institutes," J. M. Moore; *AV Instructor,* October 1965.

"To Tape or Not to Tape," J. L. Morrison, *Educational Screen and Audiovisual Guide,* Vol. 43, pp. 134-136, March 1964.

Tutoring by Tape, F. B. Cookson, Music Teachers National Association Proceedings, pp. 121-126, 1950.

"Use of Tape Recorder to Teach Business Machines," B. P. Phillips; *Bal. Sheet* April 1965.

"Using Tapes in the Classroom," J. Oberness; *Minn. J. Ed.,* March 1964.

"Utilizing Tape Recorder in Industrial Arts Program," M. L. Zancn; *Industrial Arts and Vocational Education,* February 1964.

"We Tape Our Operetta," A. B. Staley; *Teaching Tools,* Vol. 5, pp. 114-116, Summer 1958.

Part 2—Audio Tape Standards and References

The following references are articles, reports, and pamphlets dealing with the technology of magnetic audio tape recording and indicate sources of technical information and standards.

Causes of Failure in Magnetic Tape, D. F. Eldrige; Memorex Corp., 1180 Shulman Ave., Santa Clara, California 95050.

A Glossary of Terms Used in Magnetic Recordings, E. D. Daniel; Memorex Corp., 1180 Shulman Ave., Santa Clara, California 95050.

How Environment Affects Magnetic Recording Tape, C. B. Stanley; Tape Measure number 1, Ampex Magnetic Products, Ampex Corp., Redwood City, California 94061.

Head Wear Considerations in Magnetic Tape Recording, H. U. Ragle, Jr. and E. D. Daniel; Memorex Corp., 1180 Shulman Ave., Santa Clara, California 95050.

How to Get More for Your Tape Recorder Dollars, Minnesota Mining and Manufacturing Co., Revere-Wollensak Div., 2501 Hudson Rd., St. Paul, Minnesota 55119.

How to Make Good Tape Recordings—The Complete Handbook of Tape Recording, C. J. Lebel; Audio Devices, Inc., 444 Madison Ave., New York, New York, 1956.

How to Use Recordings (pamphlet), R. A. Siggelkow; National Council for the Social Studies, Washington, D. C.

The Journal of the Acoustical Society of America, Published for the Acoustical Society by the American Institute of Physics, 47 E. 55th St., New York, New York 10022.

Magnetic Tape Production and Coating Techniques, D. F. Eldridge, Memorex Corp., 1180 Shulman Ave., Santa Clara, California 95050.

101 Terms–A Glossary of Tape Recording Terms, Minnesota Mining and Manufacturing Co., Magnetic Products Div., 2501 Hudson Rd., St. Paul, Minnesota 55119.

Preservation and Storage of Sound Recordings, A. G. Pickett and M. M. Lemco, Library of Congress, 1959.

The Recording and Reproduction of Sound, Oliver Read; Editor, Radio & Television News and Radio-Electronic Engineering, Howard W. Sams & Co., Inc., 1952.

Recording Standards, Magnetic Recording Specifications, Maintenance, Frequency Response, Bias, Signal-to-noise, Print-through, Etc., *NAB Engineering Handbook,* 5th Edition, McGraw-Hill Book Co., Inc., 1960.

Sound Talk, Minnesota Mining and Manufacturing Co., 2501 Hudson Rd., St. Paul, Minnesota 55119.

The Tape Recorder in the Elementary Classroom: A Handbook of Tested Uses, Minnesota Mining and Manufacturing Co., 2501 Hudson Rd., St. Paul, Minnesota 55119.

200 Uses for a Tape Recorder, Minnesota Mining and Manufacturing Co., 2501 Hudson Rd., St. Paul, Minnesota 55119.

National Center for Audio Tapes (NCAT)
(Formerly National Tape Repository—See Page 25)
Bureau of Audiovisual Instruction
University of Colorado
Boulder, Colorado 80302

Appendix B

Directory of Known University Audio Tape Libraries

California

Audiovisual Dept.
University of California
Berkeley, California 94720

Audiovisual Services
Grossmont College
8800 Grossmont College Drive
El Cajon, California 92020

Audiovisual Dept.
Foothill College
12345 El Monte Avenue
Los Altos Hills, California 94020

Instructional Materials Center
Monterey Peninsula College
980 Fremont Avenue
Monterey, California 93940

Audiovisual Dept.
Sacramento State College
6000 Jay Street
Sacramento, California 95819

Audiovisual Dept.
San Diego State College
5402 College Avenue
San Diego, California 92115

Colorado

Audiovisual Services
Colorado State University
Fort Collins, Colorado 80521

Connecticut

Director, TV & Multi-Media Dept.
S. Connecticut State College
501 Crescent Street
New Haven, Connecticut 06515

District of Columbia

Audiovisual Director
Georgetown University
Washington, D. C. 20007

Florida

Radio Station WUSF
University of S. Florida
4202 Fowler Avenue
Tampa, Florida 33620

Illinois

Audiovisual Director
Southern Illinois University
Carbondale, Illinois 62901

Tapes for Teaching
Audio Aids Service
University of Illinois
704 S. 6th Street
Champaign, Illinois 61820

Indiana

Radio Station WFIU
Radio-Television Bldg.
Indiana University
Bloomington, Indiana 47405

Audiovisual Dept.
Purdue University
Lafayette, Indiana 47909

Teaching Materials Services
Ball State University
Muncie, Indiana 47306

Iowa

Iowa Tapes for Teaching
Audiovisual Center
University of Iowa
Iowa City, Iowa 52240

Michigan

Tape Duplication Service
Audiovisual Education Center
University of Michigan
720 E. Huron St.
Ann Arbor, Michigan 48104

Broadcasting Dept.
Western Michigan University
Kalamazoo, Michigan 49001

Minnesota

Audiovisual Dept.
College of St. Thomas
St. Paul, Minnesota 55101

Audiovisual Director
MacAlester College
1600 Grand Avenue
St. Paul, Minnesota 55101

Nebraska
Tapes for Teaching
Bureau of Audiovisual Instruction
University of Nebraska
Lincoln, Nebraska 68508

New York
Audiovisual Director
Queens College—City University of New York
65-30 Kissena Blvd.
Flushing, New York 11367

Audiovisual Director
State University of New York
New Paltz, New York 12561

Audiovisual Director
State University of New York
Stony Brook, New York 11790

Audiovisual Dept.
Syracuse University
240 H. B. Crouse Hall
Syracuse, New York 13210

Ohio
Radio Station WGUC
Health Service Bldg., Room 117
University of Cincinnati
Cincinnati, Ohio 45221

Teaching Aids Laboratory
124 West 17th Avenue
Columbus, Ohio 43210

Radio Station WOSU
Telecommunications Center
Ohio State University
2470 N. Star Road
Columbus, Ohio 43221

Audiovisual Director
Ohio Wesleyan University
Delaware, Ohio 43015

Tape Duplication Service
Kent State University
Kent, Ohio 44240

Oklahoma
Audiovisual Dept.
Oklahoma Christian College
Eastern & Memorial Road
Oklahoma City, Oklahoma 73111

Director Learning Resources
Oral Roberts University
777 South Lewis
Tulsa, Oklahoma 74114

Rhode Island
Audiovisual Director
University of Rhode Island
Kingston, Rhode Island 02881

Texas
Radio Station KUT-FM
The University of Texas
Box 7158—Univ. Station
Austin, Texas 78712

Audiovisual Director
East Texas State College
Commerce, Texas 75428

Fondren Library
Rice University
6100 Main Street
Houston, Texas 77001

Utah
Tape Library
Bureau of Audiovisual Instr.
Brigham Young University
Provo, Utah 84601

Vermont
Radio Station WRUV
Pomeroy Hall
University of Vermont
Burlington, Vermont 05401

Virginia
Reigner Recording Library
Union Theological Seminary
Richmond, Virginia 23227

Washington
Radio Station KWSC
Arts Hall—Room 110
Washington State University
Pullman, Washington 99163

Audiovisual Dept.
University of Washington
Seattle, Washington 98105

Appendix C

PRODUCER
Program Information Form for Audio Tape Programs
National Center for Audio Tapes—University of Colorado
Boulder, Colorado 80302

Producer's Name ____________________
Title or Position ____________________
Institution ____________________
Address ____________________
City__________ State______ Zip Code______

1. Series title ____________________

2. List individual titles and playing times:

Title	Playing Time

Attach additional sheet if necessary.

3. Master recorded at 7½ ips ________, 3¾ ips ________

4. Recorded on full track ______, single half track ______

5. Recommended subject areas, a. ________, b. ________,
c. ________, d. ________.

6. Recommended grade levels. a. Pre-school ________,
b. Primary________, c. Secondary________,
d. College ________, e. Adult ________.

Please note that this form is given as a sample illustration.

7. Description of Series (or program) (Content, materials, authority, etc.).

____
____
____
____

8. Description of individual programs.
a.____________________
b.____________________
c.____________________
d.____________________

Attach additional sheet if necessary to include description for each program in series.

9. Indicate what supplementary materials are available, if any (manuals, leaflets, study guides, slides, filmstrips, bibliographies, etc.), in what quantities, and from what source(s).

10. Indicate restriction(s) on use.

11. May program(s) be duplicated and distributed for educational utilization? Yes______, No______.

12. Recommended curricular application.

____
____
____

13. Recommendation for inclusion into tape library.
Should be added ______ Should not be added ______.

USER EVALUATION FORM

To Be Sent With Tapes and Filled Out By Teacher or User.

Tape Program and User Evaluation Form

1. Program Title ____________________

2. What subject area was program used for? ____________________

____

____

3. What grade level was program used in?

Pre-school ☐ Elementary ☐ College ☐

Primary ☐ Secondary ☐ Adult ☐

4. Rate the program.

Excellent ☐ Good ☐ Poor ☐ Not suited for use ☐

5. Comments ____________________

____

____

____

Name of Institution or School ____________________

User's Name ____________________ Title ____________________

Address ____________________

City ____________________ State ____________________ Zip Code ____________________

Please note that this form is given as a sample illustration.

These *Guidelines* have been prepared as a part of a contract with the United States Office of Education, as authorized under Title VII, Part B, of the National Defense Education Act of 1958. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the Project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy, and the manuscript has not been subject to the regular editorial review given Office of Education staff publications.

1967-SS-246

The National Center for Audio Tapes was originally established in 1955 and has been generally known as the National Tape Repository. The present name (NCAT) has been chosen to more clearly identify this collection as a center for audio tape programs. The term repository presented a confused image of the kinds of services provided. There was also a need to identify the center with the audio kind of tapes so as to avoid future confusion with video tapes.

The NCAT collection of audio programs consists of non-commercial programs deemed appropriate for education for studies other than those which are considered strictly foreign language or music programs. There is some overlap.

The Center exists only to serve the nation's audio needs in education. The recommendations and comments of educators are encouraged and necessary to maintain a service that best meets this need.

To keep such a collection updated, we encourage you to contact NCAT regarding programs that you feel worthy of being included in this collection.